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Proceedings
of the
Conference of State and Provincial
Boards of Health of
North America

1915

30th.



PROCEEDINGS

OF THE

THIRTIETH ANNUAL MEETING

OF THE

CONFERENCE OF STATE AND
PROVINCIAL BOARDS OF HEALTH
OF NORTH AMERICA

HELD AT

WASHINGTON, D. C., MAY 14, 1915

RALEIGH, N. C.

E. M. UZZELL & CO., PRINTERS AND BINDERS

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The meeting was called to order by Dr. W. S. Rankin, of North Carolina, the Secretary and Treasurer, as the President, Dr. A. G. Young, of Maine, was not present.

DR. RANKIN: As you will remember, Dr. Richardson, who was elected President of the Conference last year, resigned because he gave up the work of the Massachusetts State Board of Health; and Dr. Young, our Vice President, who became President, cannot be present at this meeting on account of the serious illness of his wife. The first duty of this Conference, therefore, is to nominate and elect a presiding officer.

Dr. Rankin was nominated as presiding officer, but refused to accept. Dr. S. J. Crumbine, of Kansas, was then nominated by Dr. Swarts, of Rhode Island, and was unanimously elected.

DR. RANKIN: I would like to suggest that a suitable telegram be sent to Dr. Young, expressing the sympathy of the Conference and our regret that he cannot be present.

A motion embodying this suggestion was carried unanimously, and the Secretary was asked to send the telegram.

PROGRAM.

The following program was presented:

FRIDAY, MAY 14, 9:30 A. M.

President's Address: DR. A. G. YOUNG.

Report of Secretary-Treasurer: DR. W. S. RANKIN.

Appointment of Committees:

- (1) Auditing Committee.
- (2) Committee on Nominations.
- (3) Committee on Resolutions.
- (4) Committee on Publicity.

Roll-call by Provinces and States.

Reports of Special Committees on

- (1) **Conservation of Vision:** DR. G. T. SWARTS, chairman; DR. M. M. SEYMOUR and DR. J. H. TOWNSEND.
- (2) **Pellagra:** DR. J. A. HAYNE, chairman; DR. H. L. HARRIS and DR. JOSEPH GOLDBERGER.
- (3) **Common Carriers:** DR. E. R. KELLEY, chairman; DR. C. G. McGURREN and DR. J. W. McCULLOUGH.
- (4) **Model State, District, and County Health Laws:** DR. E. F. McCAMPBELL, chairman; DR. S. J. CRUMBINE and DR. J. H. SUMNER.
- (5) **Venereal Diseases:** DR. J. N. HURTY, chairman; DR. A. G. YOUNG and DR. PAULL S. HUNTER.
- (6) **Course of Study in Sanitation for Women's Clubs:** DR. S. J. CRUMBINE, chairman; DR. FREDERICK R. GREEN and MRS. W. A. JOHNSON.
- (7) **Recent Advances in Sanitary Laws, Organization and Practices:** DR. S. J. CRUMBINE, chairman; DR. A. J. CHESLEY and DR. JOHN S. FULTON.

ADDRESSES.

- (1) **Courses of Instruction in Sanitary Science:** DR. M. J. ROSENAU.
- (2) **The Practical Use of Disinfectants:** PASSED ASSISTANT SURGEON H. E. HASSELTINE, U. S. Public Health Service.
- (3) **The Privy Problem:** DR. L. L. LUMSDEN.
- (4) **Postal Aid to State Health Work:** DR. JOHN S. FULTON.

SYMPOSIA.

The Whole-Time Health Officer:

- (a) *His Field of Work: District, County, or Both?*
DR. J. N. HURTY to open discussion.
- (b) *Qualifications of Whole-Time Health Officers.*
DR. J. A. FERRELL to open discussion.
- (c) *How Chosen and Relation to State Office.*
DR. A. T. MCCORMACK to open discussion.

Methods of Quarantine and Disinfection:

- (a) *Duration of Quarantine for Measles? Whooping-cough? Scarlet Fever? Diphtheria?*
DR. H. M. BRACKEN to open discussion.
- (b) *Degree of Isolation for Measles? Whooping-cough? Scarlet Fever? Diphtheria?*
DR. CHARLES V. CHAPIN to open discussion.
- (c) *Disinfection After Measles? Whooping-cough? Scarlet Fever? Diphtheria?*
DR. C. F. DALTON to open discussion.
- (d) *Quarantine or No Quarantine for Smallpox?*
DR. JOSEPH Y. PORTER to open discussion.
- (e) *Differences in Methods of Quarantine and Disinfection for Urban and Rural Populations.*
DR. R. Q. LILLARD to open discussion.

NEW BUSINESS.

- (1) Report of Auditing Committee.
- (2) Report of Committee on Resolutions.
- (3) Report of Nominating Committee.
- (4) Election of Officers.
- (5) Adjournment.

OFFICERS OF THE CONFERENCE.

President—DR. A. G. YOUNG, Maine.

Secretary-Treasurer—DR. W. S. RANKIN, North Carolina.

REPORT OF SECRETARY-TREASURER.

This report was read by DR. W. S. Rankin, Secretary-Treasurer:

Mr. President and Members of the Conference: As Secretary, I wish to report that during the last year the Conference unfortunately lost its President, DR. M. W. Richardson, by resignation; but it fortunately had a worthy successor to assume DR. Richardson's official responsibilities in its Vice President, DR. A. G. Young.

Five hundred (500) copies of the Transactions of the last Conference were printed and distributed in September, 1914. Each member of the Conference was supplied with five copies of the Transactions—four paper bound and one cloth bound; and the same number of Transactions were sent to the United States Public Health Service, the Medical Department of the United States Navy, the Medical Department of the United States Army, the American Association for

the Study and Prevention of Tuberculosis, and the American Public Health Association. Extra copies have been distributed on request to officers of different organizations interested in the general purposes of the Conference.

The program for this meeting is the result of the continuation of several standing committees of the Conference with the addition of one new committee, namely, a Committee on Recent Advances in Sanitary Laws, Organizations, and Practices, and the replies to a circular-letter to the different members of the Conference requesting each member to suggest the subject in which he was most interested and the name of the person whom he would like to have discuss it. In this way the Secretary has endeavored to make the present program meet the general needs of the Conference.

As Treasurer, I beg to report as follows:

ASSETS.

Balance on hand June 19, 1914-----	\$216.25
Assessments collected to May 14, 1915-----	360.00
Total assets -----	\$576.25

DISBURSEMENTS.

1914.	
July 3.	To Miss Mary Robinson, stenographic report of 29th Conference-----
	\$ 59.80
July 24.	E. M. Uzzell & Co., printing programs-----
	4.00
Sept. 4.	Miss Mary Robinson, work on Transactions-----
	53.65
Nov. 27.	E. M. Uzzell & Co., printing, binding, and mailing Transactions-----
	217.43
1915.	
Feb. 4.	E. M. Uzzell & Co., 500 letter-heads, -----
	2.00
	Total disbursements-----
	336.88
	Balance on hand-----
	\$239.37

The following Provinces and States are in arrears for their 1914 dues: Alberta, Manitoba, New Brunswick, Nova Scotia, Arizona, Arkansas, Canal Zone, Colorado, Idaho, Maryland, Missouri, Montana, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, Pennsylvania, Porto Rico, South Carolina, South Dakota, Tennessee, Texas, and Wyoming.

Respectfully submitted,

W. S. RANKIN,
Secretary and Treasurer.

Dr. Swarts moved that the report of the Secretary-Treasurer be received, approved, and properly audited, and this motion was carried.

APPOINTMENT OF COMMITTEES.

The following committees were appointed by Dr. Crumbine, the presiding officer:

Auditing Committee.—Dr. A. Clark Hunt, Dr. C. F. Dalton, Dr. E. F. McCampbell.

Committee on Nominations.—Dr. J. S. B. Pratt, Dr. A. J. Chesley, Dr. J. A. Hayne.

Committee on Resolutions.—Dr. G. T. Swarts, Dr. J. N. Hurty, Dr. E. R. Kelley, Dr. H. G. Sutton, Dr. T. D. Tuttle.

Committee on Publicity.—Dr. W. C. Woodward, Dr. A. W. Freeman, Dr. S. J. Crumbine.

ROLL-CALL.

The following Provinces and States responded to the roll-call:

Ontario	Dr. John W. S. McCullough.
Saskatchewan	Dr. M. M. Seymour.
U. S. Public Health Service	Dr. John S. Anderson. Dr. John William Trask. Dr. H. E. Hasseltine. Dr. Taliaferro Clark. Dr. Joseph Goldberger. Dr. L. L. Lunnsden.
Connecticut	Dr. J. H. Townsend.
Delaware	Dr. A. E. Frantz. Dr. William P. Orr.
District of Columbia	Dr. W. C. Woodward.
Georgia	Dr. H. F. Harris.
Hawaii	Dr. J. S. B. Pratt.
Indiana	Dr. J. N. Hurty.
Kansas	Dr. S. J. Crumbine.
Kentucky	Dr. A. T. McCormack.
Louisiana	Dr. Oscar Dowling.
Maryland	Dr. J. S. Fulton.
Massachusetts	Dr. A. J. McLaughlin. Dr. E. R. Kelley.

Michigan	Dr. John L. Burkart.
Minnesota	Dr. A. J. Chesley.
New Jersey	Dr. A. Clark Hunt.
New York	Dr. Linsly R. Williams.
North Carolina	Dr. W. S. Rankin.
Ohio	Dr. E. F. McCampbell. Dr. H. T. Sutton.
Pennsylvania	Dr. B. Franklin Royer.
Rhode Island	Dr. G. T. Swarts. Dr. John H. Bennett.
South Carolina	Dr. J. A. Hayne.
Texas	Dr. B. L. Arms. Dr. Bibb.
Vermont	Dr. C. F. Dalton.
Virginia	Dr. E. G. Williams. Dr. R. K. Flannagan.
Washington	Dr. T. D. Tuttle.
Wisconsin	Dr. C. A. Harper.

Others present were:

Dr. Milton J. Rosenau, Director School for Health Officers, Harvard University, Cambridge, Mass.

Dr. John A. Ferrell, Assistant Director-General, International Health Commission, New York City.

Dr. T. R. Crowder, Director, Department of Sanitation and Surgery, The Pullman Company, Chicago.

Dr. J. H. McCully, National Funeral Directors' Association, Idaville, Ind.

Dr. C. V. Chapin, Superintendent of Health, Providence, R. I.

Dr. Fitzrandolph, Dr. Wilcox.

COMMITTEE ON THE CONSERVATION OF VISION.

Dr. Gardner T. Swarts, chairman (before reading report): At the last meeting of this Conference I presented the report of the Committee on the Conservation of Vision. That report included practically everything in connection with the loss of sight and with the diseases of the eye which could be influenced by action of State Boards of Health, taking it from a practical

standpoint, *i. e.*, addressing the subject entirely from the position of what State Boards of Health could do. One member requested that this report give special attention to the subject of trachoma. When I took up the subject, not having any considerable trachoma in the State of Rhode Island, I thought it did not amount to much. But, in duty bound, I investigated the subject, and I began to think that there was some trachoma, and then some more. Now I think it is a very practical subject to come before boards of health, especially with such large numbers of people coming in from oriental countries and introducing this disease, which in some States becomes epidemic. Trachoma being such a chronic disease, I took up that subject almost to the exclusion of others.

The report of the committee is as follows:

In the report of your committee presented last year considerable attention was given in a general way as to the causation of blindness from various causes, including industrial and domestic influence. Special reference was made to the conditions associated with the cause and prevention of ophthalmia neonatorum and the means which had been employed by various States through boards of health and societies giving special attention to the prevention of blindness.

In compliance with a recommendation passed at the last meeting, and from the discussion which followed the report, the subject of trachoma is given consideration in this report, and, as in the previous one, should be considered particularly from the standpoint of how boards of health may undertake in a practical manner the discovery and control, if not the suppression, of trachoma whenever it appears within the confines of their jurisdiction.

First, let us assume what shall be the disease sought for, not that there is any question among oculists as to the distinctiveness of this disease, but because of the lack of ability to diagnose the disease, from similar conditions of the eye, by the average physician.

Trachoma may be described as an infectious or communicable disease of the eye, presenting at first a conjunctivitis associated with a purulent discharge, followed by granulation of the conjunctival surface of the upper and lower lids. These granulations, by their mechanical action, cause irritation and erosion of the deeper structures and, possibly assisted by the infectious material present, produce ulcerative degeneration which may result in the destruction of the eye or loss of sight from the formation of cicatrices in the outer coats of the eye, or from collapse of the globe.

In those States where there are no isolated communities and where the conditions of living do not preclude the common practices of

cleanliness, either from limited means, condensed housing, and close personal contact, the question arises, What is trachoma? Does this disease exist within our State, or is it one of those sensational outbreaks with which certain localities appear to be unnecessarily disturbed and which is possibly due to the influx of an alien population?

While the United States Public Health Service is acquainted with these conditions as far as it is able to secure correct information from the various States, yet your committee, as a lay epidemiological factor, sought to ascertain, by means of one of those persistent and interminable questionnaires with which we are daily interviewed, how much or little was known about trachoma in the various States and how much attention was given to it at the present time.

Of 39 States and Provinces replying, the disease was found to exist in 32 States. In 9 States an approximate estimate could be made as to the number of cases existing. In 5 it was assumed to be absent.

Thirty-seven States declared that the disease should be a reportable one, but in only 24 were reports required, although 8 were about to include trachoma in their list. Only 5 States had confidence that the average physician was capable of making a diagnosis of such a case.

The means suggested for its control were varied, but were such as would be called for in the presence of any other communicable disease transmissible by contact infection.

The various reports of the Public Health Service present the most practical means of control as the result of investigations and experience. As the disease commonly fails of recognition, being mistaken for chronic conjunctivitis, or diagnosed as granular lids, it is perhaps desirable to consider the distinctive symptoms of trachoma in its different phases.

Some writers distinguish three stages of the disease. (Stucky; Clark and Schereschewsky.)

The acute stage presenting a conjunctivitis, a purulent discharge, cloudy cornea, photophobia and impaired vision, a condition which may be found in other forms of active inflammatory and infective diseases of the eye, difficult of diagnosis unless found in the presence of other established cases. On inverting the upper lid the conjunctiva is swollen, red, moist, and thrown into folds.

A second stage in which the palpebral conjunctiva has become hypertrophied by connective tissue formation, causing a drooping appearance, studded with granular masses or granules undergoing destruction and varying from a white pearly sago grain color to a deep red; this causes the rough and uneven surface which is characteristic of the disease. The tarsal cartilages become thickened, newly formed blood

¹Trachoma in Eastern Kentucky. Pamphlet V, Conservation of Vision Series, Amer. Med. Assn., 1913.

²Trachoma: Its Character and Effects. Pub. Health Service of the United States, 1914. Contains several vivid characteristic colored illustrations of Trachoma.

vessels appear in the cornea, resulting in vascular keratitis or panus, ulceration and trichiasis. A distinctive sign is presented by a minute striation of newly formed tissue throughout the mass of granulation. Then begins the real suffering, complicated with impaired vision, photophobia, lacrymation, and discharge of mucoid material which later becomes mucopurulent.

The third or advanced stage, connective tissue has replaced the palpebral conjunctiva. The tarsal cartilage has become atrophied or destroyed; the lashes are turned inward and upward, causing further irritation of the cornea, thus giving the appearance of ground glass. In this stage the ulcerations of the cornea assume a virulent condition, frequently perforating and emptying the anterior chamber and terminating in adhesions of the iris and lens to the cicatrized cornea. In this condition there is no hope for amelioration or relief. At times the posterior palpebral surface is firmly adherent to the eyeball, a condition known as symblepharon.

A differential diagnosis must be made in the first stage from acute conjunctivitis, and in the second from follicular conjunctivitis, adenomatous conjunctivitis, and from vernal catarrh. The distinguishing features, as far as they may be determined, are described by Clark and Schereschewsky.

Certain peculiarities in regard to the infectiousness of trachoma have been observed. In families where a large number of cases exist one or more persons fail to become infected, although living and sleeping in the same rooms and beds and using common towels with those who have the disease. It also occurs that an infection of one eye is not carried to the other eye. Perhaps this may be explained by the fact that in most of the cases examined in localities where it has existed for a long period of time only the chronic and probably less infective forms of the disease exist.

The colored race appear to have a certain immunity as compared with the whites.

Aliens arriving in this country affected with trachoma are deported. Many of these cases are detected by the quarantine health officers, who have become expert in discovering suspicious cases. These patients are turned back to the port from which they came, secure a second passage on some other steamship line if they have the passage money, or, failing that, secrete themselves as stowaways, only to be again discovered and turned back. Five of these unwelcome cases were thus discovered last year on one of the Fabre Line steamers at the port of Providence, R. I.

Attention is called by writers, however, to the fact that while we exclude new cases of the disease we are doing little systematic work in the reduction of cases already accumulated in certain communities or districts. As with hookworm disease, its prevalence has not been appreciated except in isolated investigations by the United States

Public Health Service and some State Health Boards. Like pellagra, the disease evidently exists without common recognition and presents the necessity of health boards to instruct, investigate, isolate, and treat conditions and persons.

When discovered, the correction of the conditions becomes usually more of a sociological type than medical, for the insanitary association and environment of poverty is a factor that cannot be corrected by isolation, which is impracticable where large families are crowded into small houses. As the eradication of the hookworm requires a complete equipment of shoes and their use, and the utilization of sanitary privies, so does the control of trachoma and of typhus call for soap, water, towels, and reduced domiciliary congestion. The tools are simple, but their application is no small problem.

Since trachoma is probably most readily spread by means of towels or rags, used to wipe the face, it is of interest to note the number of States which have laws establishing the use of the common towel in public places, varying to meet the conditions of different localities, and which are as follows:

COMMON TOWELS PROHIBITED IN PUBLIC PLACES.

Albuquerque, N. Mex. (*Ord. Aug. 7, 1913.*)

SEC. 27½. That the use of roller towels is prohibited in all hotels, restaurants, saloons, and other public places.

Colorado Springs, Colo. (*Ord. Dec. 10, 1913.*)

SEC. 1. That no person, firm, or corporation shall hang or place, or cause or permit to be hung or placed, any towel or other material which could be used for the purpose of a towel, in place in any store, building, hotel, restaurant, church, hall, factory, theater, or other public place where more than one person could use the same for said purposes: *Provided*, that this shall not apply to paper towels which are to be discarded after use by one individual, or towels of such size that they can properly be used but once, and if placed in sufficient quantity to accommodate all persons who make use of them.

SEC. 2. Any violation of this ordinance shall be punished by a fine of not exceeding \$50.

Iowa. (*Reg. Bd. of H., Jan. 14, 1914.*)

Whereas the roller towel, or common towel, used in public places has been a means of dissemination of many infectious and contagious diseases, thereby being a menace to the public health: Therefore, be it

Resolved, That the following rule, to be known as Rule 10, chapter 1, of the Revised Rules and Regulations of the Iowa State Board of Health, be and the same is hereby enacted:

RULE 10.

Sec. 1. The use of the roller towel or any other form of towel used in common in hotels, restaurants, public buildings, public toilets, public washrooms, or in any other building or place where such common towel is in use by the general public within the State of Iowa, is hereby prohibited and ordered discontinued.

SEC. 2. That under the authority of section 11 of chapter 168, Laws of Thirty-third General Assembly (commonly known as the Iowa hotel law), the inspector of hotels and his deputies are requested to report to the State Board of Health any neglect or violation of this rule on the part of the hotels of Iowa.

SEC. 3. It is hereby made the duty of the local boards of health to adopt and enforce this rule, as provided in section 2572, Supplement to the Code, 1907.

Lexington, Ky. (*Ord. 149, July 9, 1913.*)

SEC. 3. 9. The maintenance, in a public place, of a roller towel for the use of more than one person.

Maine. (*Reg. Bd. of H., Mar. 25, 1914.*)

SEC. 1. The use of . . . a common towel on any railroad train or other common carrier or in the stations, waiting-rooms, or lavatories connected therewith, or belonging thereto, or in any public, parochial, or private school, or in any State educational institution, or in any hotel or restaurant, or in any theater or other public place of amusement, is prohibited.

SEC. 2. No person, firm, corporation, board, or trustee, in control of or in charge of any common carrier or building, room, institution, or place mentioned in section 1 shall place, furnish, or keep in place, . . . towel for public or common use, and no such person, firm, corporation, board, or trustee shall permit the use of a . . . common towel on or in any common carrier, or building, room, institution, or place mentioned in section 1.

SEC. 3. . . . The term common towel as used herein shall be construed to mean roller towel or a towel intended or available for common use by more than one person without being laundered after such use.

North Dakota. (*Reg. Bd. of H., Nov. 21, 1913.*)

25. The common towel having been proven to be a medium through which disease is carried from person to person, therefore, for the protection of the public health, the use of the aforesaid towel shall be prohibited in all railroad stations, waiting-rooms, hotels, restaurants, boarding-houses, boarding schools, or other public places in this State.

Ohio. (*Reg. Bd. of H., Mar. 19, 1914.*)

RULE 2. That common carriers shall not provide in any car, vehicle, vessel, or conveyance operated in traffic within the State, or in depots, waiting-rooms, or other places used by passengers traveling to various parts of the State, any towel for use by more than one person; and that schools, churches, hospitals, workshops, factories, hotels, saloons, restaurants, stores, telephone exchanges, telegraph offices, or any office buildings or public buildings in the State shall not provide any towel for use by more than one person: *Provided*, that this regulation shall not be held to preclude the use of towels that have been sterilized in boiling water after use by each individual, nor shall it be held to preclude the use of sanitary towels for individual use only.

Pennsylvania. (*Reg. Bd. of H., Jan. 3, 1913.*)

Second. No person, persons, or corporation within the Commonwealth of Pennsylvania shall furnish for public use any towel unless such towel be laundered or discarded after each individual use.

South Dakota. (*Reg. Bd. of H., July 25, 1913.*)

98. *Roller Towel.* The use of roller towels, or any large towel which may be used for more than one service, shall not be permitted in any hotel, schoolhouse, restaurant, boarding-house, saloon, club house, public lavatory or washroom, nor in any public or private place where a number of people congregate, in the State of South Dakota; but instead the owners, proprietors, managers, or other persons in charge of such places shall provide a sufficient quantity of individual towels of any fabric approved by the State Board of Health, so that each person may have a clean one for his own use.

While it has not been the function of boards of health to assume the practice of medicine, yet from the lack of knowledge of the average physician in diagnosis and of treatment of unusual or obscure communicable diseases, it is becoming yearly a necessity for boards of health not only to institute proceedings to prevent the spread of these diseases, but to assume the treatment as a necessary part of the control. It is freely acknowledged that there are few physicians who can recognize trachoma in any of its stages, and in communities where it is most prevalent there may be no physicians to either discover, isolate, or treat the disease. Under these conditions surely it is the duty of health boards and commissions to assume the duty of diagnosis, isolation, education, and treatment of the disease.

Investigators having to deal with large numbers of cases have each a difference in technique in treatment, although all seek the destruction of the granulations by mechanical or caustic treatment. Some utilize antiseptic medication in addition. A simple line of treatment in the Philippine Islands is described by Louis Schwartz:²

"The treatment given depended on the treatment of the case. Those presenting well marked masses of granulations were treated by copper sulphate applied as follows: The eye was anesthetized by instilling 3 or 4 drops of a 2 per cent solution of cocaine. The lid was everted by holding the eyelashes between the thumb and index finger of the left hand while the middle finger pressed a match stick behind the tarsal cartilage on the external surface of the lid and exposed the retrotarsal. The sharp edge of a lance-shaped crystal of copper sulphate, held in the right hand, was then used to curette away the granulations, at the same time exerting its caustic action.

"In some cases the trachomatous membrane was incised with the crystal in numerous places and curetted away. A boric-acid wash was freely used and the patient sent home and told to apply ice to the eye continuously for four hours. In all, about 100 cases were treated in this manner. Some of these cases were treated in this way two and some three times at intervals of two weeks. Between operations a 50 per cent solution of glycerite of boroglycerin was applied to the lids twice a week.

"Those cases in which the granulations were comparatively few and more or less discrete were treated only by application twice a week of a 50 per cent glycerite of boroglycerin or of 20 per cent solution of copper sulphate in glycerin. These solutions smart the eyes

²Trachoma: Its Prevalence and Control in the Public Schools of Cebu, Philippines.

for a few minutes after application, but the patients soon become accustomed to this, and even the youngest children will take the treatment without causing any trouble.

"The acute cases were first treated by the instillation of atropin to relieve the photophobia and by instillations of a 20 per cent solution of argyrol until the acute symptoms subsided. Then the copper sulphate crystal was used as described above.

"All the patients received an eye lotion to be used freely at home four times a day. It consisted of boric acid, 2 parts; sodium biborate, 1 part; water, 80 parts. They were instructed to use individual towels and wash basins, and warned against rubbing the eyes with their hands."

A few utilize germicidal medicaments. The use of carbon dioxide snow as an agent for destruction of the granulations might be suggested. Its successful use in the destruction of superficial epitheliomas and nevi of the skin has proved of value. It has the advantage of producing a minimum amount of cicatricial tissue. This is extremely important in treating the lids of the eye, to avoid distortion and ectropion, which, by permitting the invasion of dust and constant irritation, admits of repeated infection, especially when other cases are associated in the same family or institution.

PRACTICAL SUGGESTIONS.

1. Trachoma should be made a reportable disease to the State Board of Health.
2. Cases should be visited and isolation maintained as far as is practicable in isolated cases and in institutions and public schools, and examination of all new admissions should be made.
3. In the presence of one case in a family, institution, or community, all others associated with the patient should be examined.
4. Owing to the lack of diagnostic ability of the average physician, expert oculists should be engaged as epidemiologists to discover, examine, and treat cases.
5. Educational measures for physicians by instruction and periodical demonstrations by experts at health officers' meetings should be given.
6. Educational literature for physicians and for the laity should be repeatedly distributed.
7. Where lack of funds hinders thorough examinations of communities, boards of health should request the assistance of the United States Public Health Service.
8. Research work should be utilized to determine the nature of the infectious material which is presumed to be the cause of the disease.
9. Where isolation of cases is impracticable, as in large families occupying small quarters, an attempt should be made to provide separate beds, individual towels, only running water for washing of face and hands, or individual basins when water is limited in quantity.

10. Treatment which shall be thorough, continuous, and persistent, but not dependent upon the attention given by the patient or his family, but which shall be supplemented by habits formed by attendance at a clinic or by the repeated visitations of a trained district nurse.

11. The coöperation of State Boards of Health; dependence upon assistance which may be afforded by the Public Health Service, the local schoolmasters, and visiting trained nurses.

GARDNER T. SWARTS,

M. M. SEYMOUR,

J. H. TOWNSEND,

Committee.

Dr. M. M. Seymour, a member of this committee, submits a report of the conditions found by his department in the Province of Saskatchewan, in which it would appear that this Province had had all the varied experiences possible in connection with trachoma. Climatic and tellurial influences, the influx of aliens, and cases from other States, the ignorance, uncleanliness, and unusual and unnatural manner of housing, and Indian reservations, all afford an unusual, if not enviable, opportunity for the study and treatment of this disease.

The occurrence of wind and sand storms, excessive cold in the winter, together with snow blindness, produce continued irritation of the eye, thus opening the way to infection. Many of the aliens living in sod huts or excavated cellars, with sod roofs, and the scarcity of water, serve to increase the possibilities of transmission of the disease.

TRACHOMA IN SASKATCHEWAN.

Trachoma in the Province of Saskatchewan, Canada, is, as elsewhere, beginning to confront us as a most serious problem of the near future. How to control this disease, to say nothing of curing it, is a vital question. The Provincial Bureau of Public Health is endeavoring to prevent the spread of this disease from all infected localities. The Indian Reserves, with their numerous cases of trachoma, are under the care and supervision of the Federal Government.

There are many nationalities in the Province, and at present the disease is practically confined to aliens, who fortunately live mostly in settlements and as yet have not become scattered about among the English-speaking people to much extent. We find trachoma most prevalent among the German-speaking Russians, Hungarians, Austrians, Serbians, and Roumanians.

The localities where these people live are similar in climatic and topographical conditions. The elevation is about 2,000 feet. The land is level or undulating prairie, with no trees, and the soil is a sandy loam of glacial deposit. At certain times of the year wind storms are prevalent. Sand is not regarded as having any influence in producing trachoma; still the constant irritation of the mucous membranes lowers their resistance. Rubbing with the fingers often grafts onto a chronic trachoma an acute conjunctivitis. In the winter and spring months, while the snow is lying on the ground, the bright sunlight causes more cases of snow-blindness than are found in uninfected localities. The excessive coldness of our climate in winter also has its ill effects, as many people crowd into small and most insanitary quarters; and it is from these places that multiple acute forms of inflammation appear to spring.

In the more newly settled parts of Saskatchewan the homes of these people are most crude, being in many cases sod huts or habitations with woven willow walls plastered with mixed clay and straw. Frequently part of a room is excavated out of the ground like a cellar. The roofs are sods laid on poles, plastered over with clay, and the floors are mere packed clay. These roofs become very sodden in rainy weather. The windows are small four-paned affairs, sealed into the wall. With lack of ventilation, cool damp walls and floors, badly lighted rooms, and a surplus of inmates, together with ignorance, filth, and poverty, trachoma gradually and imperceptibly gains ground. As the education of these settlers in the new world progresses, and they arrive at a better understanding and condition of affairs, the ~~sod~~ houses are replaced by lumber ones, and they become more civilized. One difficulty they have sometimes to cope with at first is lack of water, as in some cases water is hard to locate and sometimes found only at great depth.

The contagious nature of trachoma causes its dissemination to be an easy matter when we consider the many sources of infection. There is no doubt that telluric and climatic conditions in the localities where these people live, as well as the influence of their vocations, which are mostly agricultural, have a great effect on predisposition to infection. The moist discharge may be carried from a trachomatous eye to an uninfected one in two ways: directly, as by spouting into the eye of one making an examination or operating; or indirectly, as by being carried by intermediate objects, such as fingers, towels, wash basins, soiled linen, door latches, etc.

Some of the ways in which trachoma is being spread in Saskatchewan are the following:

1. By immigrants. At the present time we are having new cases passed to us from the East, South, and West. Immigrants from abroad, having trachoma in a latent or quiescent state, are allowed to land; those with cases of an intractable nature are returned to their own country, while many noticeable forms of the disease are

admitted to the Canadian hospitals, where they are made to undergo treatment, and then, after a more or less complete recovery, are allowed to proceed on their way.

2. By the family. This is one of the chief sources of infection, as one member of a family carries the infection to another either directly or indirectly in many ways; and not infrequently trachoma is brought into the family by a trachomatous man or maid servant, or by machine agents, peddlers, herders, stock buyers, etc. Lack of fresh air, want of cleanliness, and too many persons herded together increase the opportunity for infection.

3. By public places. This is another great source of infection—any of those places of comparatively small space which large numbers of people frequent, such as hotels, schools, railway coaches, lumber and railroad camps, boarding- and stopping-houses in new parts of the Province, and so on.

4. By Indians. They are largely on reservations, but may carry infection by attending fairs and selling merchandise.

During the past two years 712 cases of trachoma have been located by the Provincial Health Department, or reported by medical men throughout the Province. Investigation discloses that several centers are badly infected. Taking the schools as an index shows that the disease at present is sharply confined to those areas. Infection in the schools has been considered of very great importance, and the Health Department has had them carefully inspected. During this year, data from 47 schools were collected, showing the following results: Out of 1,108 children examined in country and village schools in and bordering on known trachomatous centers, 107 cases were found, giving a general percentage of 9.65 per cent. The highest percentage found in any school was 48.4 per cent, or 31 infected out of 64. Out of 47 schools inspected, 24 were found to be free of the disease. This is accounted for by the fact that these schools were on the outskirts of these foreign settlements. Six schools had 1 each out of a total of 232 pupils, or 2.5 per cent. Seven schools with a total of 86 pupils had 14 cases, or 16.2 per cent.

Sex and climate seem to have little influence in the production or prevention of the disease in persons under 12 years of age. No doubt, a reason for this may be found in similarity of their lives and habits during this period. After this, necessity may require them to abandon the pursuit of an education, and enter upon bread-earning vocations. Thenceforth the divergence in habits and working environment increases. The males are mostly out of doors, working in the dust and dirt; and this leads to increased irritation of the mucous membranes. Where the women work in the fields at the same class of work there is little difference to be found in the eyes of the males and females. Where, however, the women work as domestics in hotels, private houses, etc., the disease will sometimes lie dormant for years, requiring some irritation to become manifest.

The following statistics as to nationalities are taken from 340 consecutive cases of trachoma among our alien agricultural classes:

Americans	101
Canadians	35
Russians	138
Serbians	4
Austrians	17
Hungarians	19
Bulgarians	1
Roumanians	13
Germans	10
Norwegians	1
Swedish	1

Of the 101 classed under Americans, 23 were born outside of the United States. Of the remainder, 29 came from North Dakota, 16 from South Dakota, 14 from Kansas, 1 from Oregon, 11 from Washington, 6 from Minnesota, and 1 from Iowa. Of the 35 Canadians affected, 28 were of alien parents.

In one district recently inspected, where 31 cases were found, 28 had originally come from the United States. Of these, 21 came from North Dakota, 5 from South Dakota, and 2 from Washington. Among these were 3 cases of cicatricial trachoma which had been in Canada about three years.

Regarding the treatment of trachoma in Saskatchewan, the Bureau of Public Health is making a special effort to confine the disease to the infected districts, and to keep down its dissemination by prophylaxis and management in the application of remedies. Prophylaxis is the ideal we strive after. To this end, all roller towels and common drinking-cups have been abolished from hotels, schools, railway coaches, and public places, and in many cases sanitary individual paper towels and cups are substituted. Special medical attendants are employed, who aim to render innocuous the disseminators of infection and in making as many apparent cures as possible. It is a matter of importance that the doctor in his work among these people succeed in gaining their confidence and interest in the matter, else treatment is uphill work. The laws of Saskatchewan support him in his work, but they are difficult to enforce without the coöperation of the people they were made to benefit. Success in the treatment depends largely on the point of view and the experience of the observer. Many cases that appear cured either become reinfected or relapse. Reinfestation will depend on the home conditions to which the patient returns after treatment and the amount of practical prophylactic knowledge he has assimilated. Relapse will depend upon many factors: time at the disposal of the patient, financial position, nature of vocation, etc.

In localities where trachoma is reported or suspected, a medical officer is sent in, who usually commences his inspection of the district by examining the children of the schools. If no cases or suspected cases are found, he generally, on further examination, finds the community free of the disease. On the other hand, if any signs of trachoma appear among the scholars, old cases are almost invariably found in their homes. In certain infected districts we are having the eyes of the school children inspected nearly every week. Free medicine and advice are given. We are endeavoring to have these cases treated in their homes. This is not as easy a matter as it might appear. Most of the parents are aliens, speaking an alien tongue. However, they will frequently do for their children what they will not accept for themselves. The milder cases among them respond more readily to treatment. Our best results have been among these school children. The success of the health work depends to a great extent upon the amount of educational work being carried out. The rising generation who are attending school will in time raise the standard of their self-respect and domestic circumstances.

In the homes we are also supplying free treatment and, where possible, massage and expression, etc. These people have mostly emigrated to improve their conditions; they of necessity are compelled to work to make a living. To these patients we have had to take the treatment. Many of them will not seek treatment of themselves, unless totally incapacitated for work; even then some of them have to be hunted out.

No remedy at our disposal, so far as known, can destroy the virus, without simultaneously injuring the tissues. A large number of medicines have been recommended, combined with various mechanical and surgical ways of treatment. The fundamental aim of all treatment in these districts lies in completely curing the disease in its earlier stages. There are many things to consider when deciding on the line of treatment. It is generally recognized that the purely medical treatment of moderately severe cases is considered inadequate. According to Deniffe, continuous treatment demands from three to five years; with the frequent corneal complications, seven to eight years; and if the treatment is interrupted, its duration becomes unlimited. Many affirm that the chief difficulty lies in the long duration. In any event, treatment by medicines is still essential in inflammatory cases. Excess of inflammatory reaction endangers the cornea. Hence any excess of acute symptoms is combated by local application of cold. This is followed by cautious applications of weak astringents, such as $\frac{1}{4}$ per cent of silver nitrate solution once a day. Atropin may be used simultaneously if required. With the reduction of the discharge and congestion, sublimate lotion may be used three or more times a day, and boric ointment applied to the edges of the lids at bedtime. In a few days the conjunctivitis will be much lessened, when an attempt may be made to get rid of

the follicles. The absorption of follicles is promoted more readily from a vascular conjunctiva. This effect is no doubt produced by the increased amount of blood brought to the part. Consequently, the plan of treatment will be to produce a succession of acute pypermias to the membrane, until a cure is effected. This is best accomplished by using a smooth crystal of copper sulphate.

In severer cases massage of the mucous membranes every day with a 2 per cent solution of perchloride of mercury in glycerine, which is nearly painless, is very beneficial. The rubbing should be thorough in order to facilitate the breaking up of the superficial and deep follicles, and to assist in their resorption. In very chronic torpid cases the mild use every day of the copper stick as an astringent, and not as a caustic, is advisable. At different stages of the treatment yellow oxide of mercury may with benefit be applied. A return to copper should be resumed as soon as the follicles become pale and flabby. Prince's $\frac{1}{2}$ per cent solution of copper sulphate in glycerine, to be used frequently by the patient at home and gradually increased to the limit of toleration, has many advantages. Roller forceps correctly applied before the commencement of scarring protects the conjunctiva by preventing the development of pannus and the shrinkage due to cicatrization.

In most cases the treatment advised will suffice to bring about that condition of amelioration which is usually described as a cure.

DR. J. N. HURTY, Indiana: We all recognize the excellence and thoroughness of this report, and it is of very great value. I wish to personally compliment Dr. Swarts upon its excellence and thoroughness. It is intensely interesting, and it is a subject of mighty importance from the disease prevention standpoint. We were surprised two years ago to find that trachoma prevailed rather extensively in Indiana. In one of our counties, Bartholomew, we had an extra efficient officer who said that he believed he had met several cases of trachoma. He reported he had very little skill in diagnosing the disease and very little knowledge of it, but proposed to inform himself. He entered into correspondence with the United States Public Health Service. It ended in Dr. Blue's sending out Surgeon Nydeger, and an investigation was undertaken. Every rural school was visited, and forty-nine cases, undoubtedly trachoma, were found. The matter, of course, was reported, was made public, and the problem of what should be done was taken up. We thought, in our innocence, that kindly letters sent to the parents would have their effect, and that the children would be treated; so letters .

were sent to the homes in which there were children with trachoma. In some homes two children were affected, in others three. The letters sent out informed parents and guardians of the seriousness of the situation. Three weeks rolled by, and we visited those homes. To our surprise, we learned that only one child out of the forty-nine was being treated, and that child was a ward of the circuit court of the county, and the judge had ordered treatment immediately upon receipt of the letter. So the question arose, Why is it that these parents have no regard for the health of their children and the salvation of their eyes? So inquiries were made. I went myself, the case being so interesting. We visited one house, where we told the mother, a farmer's wife, that her child had trachoma, what a handicap it was, that the child might lose its vision, etc. Her reply was: "Oh, you doctors! We know you are just trying to git our money!" Another woman told us: "I had them sore eyes when I was a girl, and my eyes did not go out. I am not scared." Such were the replies. We received promises from only two out of the forty-eight families that something would be done. We at last consulted the Governor, the Attorney-General, and the authorities of Bartholomew County; but, strange to say, could not arouse any interest. We thought the business men might be interested, because if blindness increased they would be taxed for another asylum for the blind. Finally, the State Board of Health passed a rule that all cases of trachoma should be reported, and, furthermore, that unless cases received daily treatment by a competent person they would be put under quarantine. Twenty-two of these families were quarantined. Free treatment was finally provided. Several other cases have been found in that county.

In the rural regions, how can these cases be discovered without a liberal supply of money and expert oculists? I have no doubt that ordinary practitioners may spread this disease. I saw one pass from a case to another without cleansing his hands at all, and put his finger down the throat of another patient. The situation seems almost hopeless, though we do know that long education and persistence will clear it up.

I was in a northern county, where the Winona Chautauqua is located, and went out to see a new schoolhouse. It was a fine,

splendid schoolhouse. With Dr. Burkhard, the health officer, we looked over the children, and found two cases of undoubted trachoma. These were not foreigners, not aliens; the people had been living there for two generations. Of eight counties that have had a superficial investigation, trachoma was found in all. In the county where Terre Haute is situated there is much of it. In Indianapolis there is not a little. In making investigations and sanitary surveys we find it almost everywhere. It is a serious problem. It means, perhaps, taxing us another million dollars for another asylum for the blind. It must be looked after; so I especially appreciate this report and its many excellent suggestions.

DR. J. A. HAYNE, South Carolina: Having made trachoma reportable in South Carolina, we have been able to locate about five cases of it definitely. We had an expert oculist visit these cases and confirm the diagnosis of the attending physician. I have seen the rapid spread of trachoma on the isthmus, where it spread to over 500 school children in a very short time, and I had in my own family three cases of trachoma while on the isthmus.

I simply want to move that the recommendations made by Dr. Swarts be acted upon favorably by this Conference. This is a most serious menace to the eyesight of the children, and of the grown people as well.

DR. E. F. McCAMPBELL, Ohio: Trachoma still prevails at Youngstown, Ohio, in the steel mills. The leading company has established a trachoma hospital and is taking charge of the treatment of all cases. By this method they have been very successful in reducing the incidence of the disease and in controlling it. It has occurred almost entirely among foreigners, who were living in barracks under the most insanitary conditions, using common towels and common wash basins, sleeping in beds by shifts, the day men sleeping in the same beds the night men slept in, and without any change of linen. The problem was very complicated, but through the company it has been straightened out to a very large extent. There have been several other outbreaks, which have been the subject of special study by the State Department of Health and the Commission for the

Blind. The Commission put in special eye nurses in the communities where trachoma exists, and it has employed especially trained ophthalmologists to give the treatment. This, I think, is very essential. The fact stands out very prominently that the average practitioner does not know trachoma when he sees it. I am also convinced that there exists a difference of opinion among oculists as to what trachoma is, and when experts disagree it is very plain that the average practitioner has no business to express his opinion positively. On account of the differences in diagnosis which we come across, I think it is very wise to regard all suspicious cases as trachoma. I asked the ophthalmological section of the State Medical Society of Ohio to give me a definition, if they could, of trachoma, and the difference of opinion was exceedingly interesting. I think the only thing to do is to isolate and quarantine all diseases of the eye, all forms of infective conjunctivitis, and in that way we will get all cases of trachoma. That this is the only safe way, I think the oculists are agreed. Then we must handle all the cases by trained nurses and trained ophthalmologists.

DR. TALIAFERRO CLARK: The diagnosis of trachoma, to the inexperienced, is somewhat difficult. We must remember, however, that there are certain distinctive features of this disease which one versed in its manifold changes cannot fail to recognize as distinct pathological entities. The average oculist in this country has seen very little trachoma. It is in only a few communities that they have had the opportunity to see enough cases of this disease to make them skilled in its diagnosis.

Trachoma is a disease characterized by an enormous proliferation of the subconjunctival lymphoid cells of the palpebral conjunctiva. In the course of this proliferation these cells aggregate into masses which shove up the superficial layers of the conjunctiva in a form simulating, more or less, minute follicles and which give to the conjunctiva the roughened appearance from which the name of this disease is derived. In the course of time these cell aggregations undergo degeneration, liquefy, and the follicles formed thereby rupture; the contents are extruded and a minute cicatrix is formed. This process continues in certain cases extending over many years: a few follicles rupture today, more or less tomorrow, until finally the

whole of the subconjunctiva glandular structure is destroyed and is replaced by scar tissue. This tissue here, as wherever formed in the body, contracts, causes distortion of the eyelids and incurling of the eyelashes, irritation of cornea and the development of pannus, which is responsible for most of the cases of blindness encountered in this affection.

Pannus may also occur in the course of an acute attack of trachoma, when the inflammation is very intense. It is in this type of trachomatous inflammation that ulceration and its sequelae most frequently occur.

The seeming indifference of health officers in general to one of the most potent and adaptable measures for the conservation of vision, namely, school inspection, is a matter of great wonder to me. In the majority of States school inspections are under the control of educational boards which, I think, have only a secondary interest in them from the standpoint of the public health. For example, in the case of trachoma, educational boards are interested in this disease proportionate to the extent with which it affects visual acuity and hampers the child in taking advantage of educational opportunity. Boards of health, on the other hand, have a further interest in this affection than the mere detection of individual cases. They have the right to enter homes and institute measures for the suppression of this and other endemic diseases, revealed by school inspections, which is denied the boards of education.

Another thing, due attention to the daylight illumination of class-rooms should have a marked effect in conserving the vision of school children. At the present time the standard of daylight illumination in schools is largely architectural, which fills the requirement of the situation only within very strict and narrow limits. It is impossible to go into the details of school illumination in the brief time allotted to this discussion. However, we know that young children in the primary grades, in order to gain a clear mental concept, must have a certain volume of retinal stimulus. It is for this reason that very young children require a proportionately greater amount of illumination and the use of larger type than those of later years. Furthermore, in myopia, while insufficient illumination might not probably be productive of this condition, it is certainly aggravated

thereby. In investigations we have recently made, actual photometric observations reveal the fact that, even on clear days, the standard of illumination in a number of class-rooms is far below that recommended by the best authorities. It is advisable, therefore, that extensive studies of illumination of class-rooms be made from the standpoint of the illuminating engineer rather than that of the architect.

Boards of education are primarily concerned with the pedagogic aspects of school life, and not with the health of the pupils. As a rule, where the medical supervision of schools is in the hands of boards of education, the school physician is usually a general practitioner with whom school inspection is a side issue only. If the State health authorities had control of school inspection it would be possible to combine, in a number of instances, the salaries devoted to this purpose with that of the local health officer, which would insure the employment of whole-time men for this combined duty. This is especially desirable in rural communities, where our investigations have found the need of such inspections to be very great.

The report of this committee was received and the committee continued.

REPORT OF THE COMMITTEE ON PELLAGRA.

This report was presented by Dr. James A. Hayne, chairman.

Mr. President and Gentlemen:—As chairman of this committee, I am certain that it will be the height of impertinence on my part to make a report for this committee—the members differ so widely in opinion as to the cause of pellagra. However, we are united, I believe, in thinking pellagra a serious disease, and not an hallucination curable by Christian Science. I will, therefore, give very briefly my individual views, and then call on Dr. Harris and Dr. Goldberger to give you theirs, only asking the indulgence of the Conference for a come-back from each one of us who may desire to deliver a counter-attack.

Having thus cleared the decks and put on gray war paint, I wish to enunciate the following beliefs concerning pellagra, these beliefs being backed by the facts brought out by the exhaustive research work done by a commission composed of good American citizens, such as J. F. Siter, M.D., Captain Medical Corps, United States Army; P. E. Garrison, M.D., Medical Corps, United States Navy, and W. J. McNeil, M.D., Assistant Director of Laboratories, New York Post Graduate Medical School.

My views are as follows:

First. That the ingestion of good or bad corn has nothing to do with the etiology of pellagra.

Second. That pellagra is probably a specific infectious disease communicable from person to person by means at present unknown.

Third. That dietary treatment will improve cases of pellagra just the same as dietary treatment will cure or improve cases of tuberculosis, but that neither dietary nor medical treatment is specific for this disease.

Pellagra is greatly on the increase in South Carolina, and now that we have correct reporting of deaths, we know that it is one of the principal causes of death in South Carolina. From the reports from other Southern States, the disease is rapidly on the increase in every State where it has gained a foothold.

I wish this Conference to put itself on record as being in favor of the United States Government devoting its energies through the United States Public Health Service to studying pellagra from all standpoints, for as a health officer of the Southern States I consider pellagra a tremendous menace to the prosperity of the South, and know that only by painstaking study of this disease where it actually exists can we arrive at any correct conclusion as to its cause, prevention, or cure.

Commissions should study this disease and arrive at conclusions from facts derived by such study, and not take the *ipse dixit* of any one, be he Italian, French, Russian, or Austrian.

DR. JOSEPH GOLDBERGER, U. S. Public Health Service: It was with a great deal of surprise that I discovered that I was a member of a Committee on Pellagra. So far as I know, there has been no meeting of the committee; so, as Dr. Hayne pointed out, his remarks represent his own beliefs. He has not expressed himself as giving out these views and beliefs, such as they are, as being based on any real experience. His report is simply an expression of the views of the Thompson-McFadden Pellagra Commission.

But I do not want to discuss the views of that Commission. It would take a great deal of time, and we have other things to do. I do want to say that these views, as quoted by Dr. Hayne, are entirely inconsistent with the true facts relating to the disease. The investigations of the Public Health Service, to which I have the honor to be related, and especially the investigations of the Field Epidemiological Commission, show very definitely that the disease is not infective or contagious. They show very definitely that it is essentially dietary in origin. They show

very definitely that the treatment consists in regulation of diet. They show that it may be eradicated by the proper correction of the diet of the individual.

I may add that it is necessary not only to correct the diet, but to see also that the individual eats that diet. So much misunderstanding has arisen from the misconception that having a good diet and eating it are synonymous. I have no inclination to go into detail at this time. Having, in a preliminary way, published the facts upon which we base our inferences, I want to say that our subsequent experience entirely bears out the accuracy of these principles. In a very short time we hope to publish the full results. I would like to say, now, simply this, that I trust those of you from the South, at least, when you go back will carry with you and try to impress upon your people an idea of the great importance of correcting their dietary habits and practices.

Just one word as to what this correction should consist of. It is important that the people of the South, particularly the rural population and the population of the smaller communities, such as cotton mill and sawmill villages, include a sufficient amount of the fresh animal and leguminous proteids in their diet. I do not wish to be understood as saying that lack of these proteids is the cause of pellagra, but eating a sufficient amount of them does prevent it. For the present, that is all we wish to say about it.

DR. OSCAR DOWLING, Louisiana: In Louisiana we have a good deal of pellagra. Recently we have begun an investigation by writing to the doctors and asking about the sanitary conditions under which the patients live and about the kind of food they are in the habit of eating. Recently a doctor wrote that he had twenty patients. We sent one of our men there to investigate, and he reported that practically all these people were living on corn bread and black strap sirup. Where the diet has been changed to meat and milk and butter, they have been getting well. Some doctors are administering 606, and firmly believe that 606 is curing their patients. We have plans for a hospital to which we shall admit thirty patients, making a study of that number. If we find that change of diet is beneficial we shall move the hospital from place to place, in the hope of educating the people.

DR. JOHN S. ANDERSON, Hygienic Laboratory, Washington: It is of interest, very decided interest, to note that the makers and venders of patent medicines have at once recognized the very great importance of a full diet, and in addition to saying that you must take so many bottles of their medicine for the cure of pellagra, they say that certain changes of diet must be made, which are just in line with the remarks made by Dr. Dowling.

DR. BIBB, Texas: It seems to me that the views expressed by the last committee member are the only ones in accordance with the facts, when viewed in perspective and not so much in detail. For instance, when we take into account the great changes which have come about during the first half of this century, especially the use of canned foods, and when we consider the similarity between scurvy, beriberi, and pellagra, it seems to me that in all probability pellagra exists without the skin symptoms in a great many cases, and that we recognize only those well marked. When we come to study it intensively, we see still more evidence that the rational treatment is the dietary. This rationale is also thoroughly in accord with the idea that pellagra is common in neurotic families, who naturally show some anorexia. I think the problem will not be understood thoroughly until such work as that of Mendel and Osborne, of Yale, is carried out further, so that we shall understand the action of every food substance in its purified form. I have in mind one experiment in which, by feeding the animals on purified protein, they were able to keep them at a dead level of growth for six months. We have now reached the point where we can materially influence metabolism by the feeding of compounds of definite structure, and it seems to me that the solution of the problem lies in this direction.

DR. HAYNE: I want to state, first, that my belief is not like a theological belief, based simply upon what my inner consciousness tells me is right. I believe that is usually the base of theological opinions. I have been studying this disease carefully for about five years. I have not confined my studies to the Thompson-McFadden report nor to the report of the United States Public Health Service. Both reports I have read carefully, and weighed the evidence presented by each. I have also

studied the disease in the homes, in the hospitals, and in the asylums of South Carolina. The proof that a certain dietary is the correct treatment is the recovery of the patient. Long before there was any information given by the United States Public Health Service that diet would cure the disease, Sandwith made the same announcement. We put our patients in the hospital, we put them in bed, and fed them on meat, eggs, and milk; but the tale remains the same. Some of the patients died. They did not all die. Why? Because 10 per cent only of pellagrins die; 90 per cent get well. In children 99½ per cent get well. Any system of dieting will cure, provided it does not kill. The child will get well anyhow, because the disease in only rare instances kills children. These facts will be borne out by the experience of any one who has studied the disease in orphanages.

Now, there are certain facts upon which a reasonable difference of opinion can be based, with the dictum or dogma that if you put a pellagrin to bed and give him a certain definite diet and see that he eats it, he will get well. This is not my experience; it has not been my experience since this theory has been announced, and I am unable to judge whether these results have occurred under the treatment of the Public Health Service, because I have had no report whatsoever from the hospital in Spartanburg. I do not know how many cases are in the hospital, how many are getting well, how many died, although I am the State Health Officer of South Carolina and entitled to reports from any hospital in that State.

DR. GOLDBERGER: Just one word with respect to the recovery of pellagrins. Dr. Hayne is undoubtedly right that pellagrins tend to recover without any apparent reason. It is certainly not a very fatal disease in children. I do not mean to emphasize the therapeutic side of this problem, but I do wish to emphasize that the diet actually consumed, if it is the proper diet, will prevent reurrences. We have had experience with this matter, and our experiences are entirely in accord with my statements. As I said, our results will be published very shortly, and I do not wish to anticipate that, because it will be impossible to give a full idea of the subject.

On motion of Dr. W. C. Woodward, the report of the committee was accepted and the committee continued.

**REPORT OF COMMITTEE ON SANITATION OF
COMMON CARRIERS.**

The report of this committee was presented by Dr. E. R. Kelley, chairman.

The Committee on the Sanitation of Common Carriers begs to submit the following report for the past year, carrying out substantially the same form of procedure as has been carried out for the past two years.

A.

A questionnaire was circulated among all of the States and Provinces, the Territories of Hawaii and Porto Rico, and the District of Columbia, requesting information on the three points of greatest interest, as far as this Conference is concerned, in relation to the hygiene of transportation, viz.:

1. Adoption of new laws and regulations;
2. Installment of new sanitary equipment;
3. Occurrence of epidemics due to faulty or inadequate sanitation on the part of common carriers.

To this questionnaire 31 States, 4 Provinces, the District of Columbia, and the Territory of Hawaii replied.

From 25 States, 1 Province, the District of Columbia, and the Territory of Hawaii negative replies were received to the three questions.

From 6 States and 2 Provinces affirmative replies were received to the first question.

From 1 State and 2 Provinces affirmative replies were received to the second question.

From all of the States and Provinces and Territories which replied negative replies were received to the third question.

I. NEW LAWS AND REGULATIONS.

Kansas—Laws enacted giving the State Board of Health absolute control over the waters served to the public by common carriers; in effect, supplemental to the Interstate Quarantine Regulations.

Kentucky—Adopted regulations requiring sanitary privies at railway stations.

Maine—Adopted regulations prohibiting common drinking cups.

Mississippi—Adopted regulations pertaining to railroad coaches and stations. These provide for:

1. Proper toilet facilities, to be kept in a sanitary condition; somewhat detailed specifications as to what shall be considered "sanitary condition."
2. Prohibiting of the common roller towel in railroad trains.
3. Prohibiting of dusting and sweeping of coaches when occupied by passengers and of dry dusting. All coaches are required to be clean on leaving terminals.

4. Spittoon specifications.
5. A monthly thorough cleansing of cars, including airing and sunning and complete scrubbing.
6. A gaseous disinfection of a car whenever it has been occupied by a person ill with a contagious disease.
7. Pure water for drinking purposes. Common drinking cup prohibited.

Similar regulations are in effect for the stations.

New York—Chapter 7 of the Sanitary Code prohibits expectoration in common carriers. The use of the common towel and common drinking cup is prohibited.

Regulation 50, under chapter 2, *Communicable Diseases*, provides that whenever the State Commissioner of Health shall make declaration of the existence of an epidemic in any municipality, and shall notify the local board of health, he may then prohibit any common carrier from receiving any person for transportation in such municipality except upon a certificate from the local health officer. Furthermore, it shall be the duty of common carrier authorities to post a warning sign, stating over the signature of the State Commissioner of Health that an outbreak of the disease in question exists in such municipality and that all passengers are cautioned.

Pennsylvania—Is just putting into effect a regulation prohibiting all persons having communicable diseases to have anything to do with the cooking or handling or care of food.

British Columbia—Is just issuing a new regulation to permit forcible ejection by the officials of common carriers of any persons expectorating upon the floor, wall, or any part of a conveyance.

Saskatchewan—Has a law prohibiting the common drinking cup and roller towel in public places, including railroads and steamboats.

In addition to the State laws and regulations, numerous ordinances have been adopted in various cities relative to the sanitation of street cars. These take the usual form of prohibiting overcrowding; providing for routine, frequent cleaning, establishing a minimum temperature for heating and requiring cars to be kept ventilated. Typical among such ordinances are those adopted recently for Arlington, Mass.

New York City Overcrowding Regulation—Perhaps the most remarkable development of the hygiene of transportation in recent years has been the movement led by the New York City Health Department to abate the overcrowding of street cars and the argument advanced for the justification of such an order on the basis of the overcrowding being a menace to the public health, the entire controversy culminating with the action of the Board of Health on February 26, declaring overcrowded cars on certain street lines of the city to be a public nuisance, and ordering that "the carrying of passengers on these lines be 'so regulated that the total number of passengers of any car, at any time, shall not exceed one and one-half times the seating capacity of the car.'"

II. NEW SANITARY EQUIPMENT.

Pennsylvania—The State Department of Health requires that the railways keep sanitary devices on bridges by making them put in tight floors and while passing over the most important watersheds keep the doors of lavatories locked. Emphasizes the importance of this work by pointing out that the epidemic of 1907 in Scranton was probably due to pollution of the city's water supply from railroad coaches.

British Columbia—The Canadian Pacific Railway and Grand Trunk have equipped their trains and steamers with sanitary soap dispensers and modern deodorizers.

Ontario—Is making use of steam disinfection of sewage on the lake boats.

III. OCCURRENCE OF EPIDEMICS IN ASSOCIATION WITH COMMON CARRIERS.

No disease outbreaks attributed to defects of common carrier sanitation have been reported to the committee for the year under consideration.

B.

CONTROL OF COMMON CARRIER SANITATION THROUGH FEDERAL INTERSTATE QUARANTINE REGULATIONS.

The United States Public Health Service has recently presented a new draft of the Interstate Quarantine Regulations which covers in a very comprehensive fashion practically every phase of the sanitation of common carriers. This draft is too extensive to quote in a report of this kind, but will be presented to all of the State Boards of Health. In explanation, the following communication from the Surgeon General is submitted:

"Reference is made to your letter of the 13th inst., in which you request information relative to the advances in the subject of sanitation of common carriers carried out by the United States Public Health Service.

"In reply, you are informed that there is transmitted under separate cover a draft of the proposed Interstate Quarantine Regulations, which are soon to be presented to the Secretary of the Treasury, with recommendation that he promulgate the same. In bringing this before the Committee on Railway Sanitation of the State and Provincial Boards of Health of North America, it is requested that you point out that these regulations are the minimum, and that any State or Territorial Board of Health which desires to make more drastic regulations of its own is, of course, at liberty to do so. At the same time it has been felt desirable to limit the regulations at the present time to those which were practical and enforceable.

"During the past year there has been a marked improvement in the water supplies furnished by common carriers to passengers in interstate traffic. This has in large part, in the opinion of this Bureau, been due to the enforcement of the amendment to the Interstate Quarantine Regulations promulgated under date of January 25, 1913.

A large number of water supplies hitherto used on cars, vessels, and vehicles operating in interstate traffic by common carriers have been discontinued. Others have been greatly improved, and in many instances the examination which was necessary in order to secure the certificate for the water has disclosed a polluted water supply the existence of which was not suspected either by the traveling public or the townspeople who use the same supply.

"The reports of inspecting officers show that the common drinking cup has practically ceased to exist on board interstate cars and vessels since the enforcement of the common drinking cup regulation of October 30, 1912.

"Amendment No. 7 of the Interstate Quarantine Regulations, which covered the water for drinking or cooking purposes taken on board vessels in harbors of the United States, has also had a sanitary effect, as has also Amendment No. 8, which covers the water intended for employees of common carriers.

"On January 12, 1915, an amendment to the Interstate Quarantine Regulations was promulgated, forbidding the use of water from lakes or streams over which vessels were being navigated, unless the safety of said water was certified by the United States Public Health Service or the State or municipal health authority within whose jurisdiction it was obtained. This regulation has not been in effect long enough to make a definite statement as to its usefulness, but the indications are that it is effecting very great good.

"During the past year preliminary studies bearing on the subject of track pollution were made by an officer of the Service. His findings did not indicate that, in the area studied, track pollution constituted any very grave danger to the public health."

CONCLUSIONS AND RECOMMENDATIONS.

In the conclusions of the committee submitted at the Twenty-eighth Conference it was noted that there was a distinct tendency in both the United States and Canada to abandon extreme and impractical requirements in matters pertaining to railroad sanitation, and that there was an increasing tendency to greater uniformity in the sanitary usages required in the several States. During the past year there have been no developments in the subject of common carrier sanitation sufficient to justify any additional conclusions or recommendations beyond those of last year.

In the line of recommendations, the committee begs to resubmit the last recommendation submitted in its last report, namely:

That, inasmuch as all matters of common carrier sanitation that pertain to interstate common carriers could probably be better and more advantageously handled through Federal and Dominion agencies than State and Provincial, the sanitary authorities of the several States and Provinces favor in whatever way they may such a transfer of authority.

Respectfully submitted,

EUGENE R. KELLEY, M.D., *Chairman*;

J. W. S. McCULLOUGH, M.D.,

C. J. McGERREN, M.D.,

Committee.

APPENDIX.

The following is a concise, graphic representation of the sanitary regulations in force in the United States, compiled by the Sanitarian of the Pullman Company.

RAILWAY SANITARY REGULATIONS IN THE UNITED STATES

REGULATION IN FORCE

REGULATION REPEALED

T EACH TRIP

APPENDIX.

Several articles of importance have appeared during the past year in the literature on the hygiene of transportation which deserve special notice. Among them, one on "Sewage Disinfection by the Use of Steam," by Leslie C. Frank, sanitary engineer of the United States Public Health Service, appearing in the January 1, 1915, United States Public Health Report, and two articles by Surgeon A. D. Foster, of the United States Public Health Service, entitled "Methods of Cleansing and Disinfection of Railroad Coaches" and "Interstate Migration of Tuberous Persons," March 12 and 19, United States Public Health Reports.

DR. T. R. CROWDER, Superintendent of Sanitation, The Pullman Company, Chicago (being asked to discuss the report): There is very little to add to the report. Little has been done toward the further regulation of railway sanitation during the last year. So far as the Pullman service is concerned, we have gone steadily forward in the systematization and standardization of the cleaning and equipment of cars. One feature to which I would call attention is the policy of building all water coolers with separate compartments for water and ice, so that there is no contact between them. We are also equipping all our cars with liquid soap dispensers, which is probably of more importance from the esthetic than the sanitary standpoint, since it probably has little to do with the prevention of disease.

Another measure of some importance from a sanitary standpoint is the development of our vacuum cleaning plans. At the meeting of this Conference a year ago I mentioned that we had developed a vacuum cleaning machine to be used in railway coach-cleaning yards. This machine was originally operated by electricity; but we had a great deal of trouble in maintaining current and voltage at a constant level and we are now experimenting with machines operated by gasoline motors. So far the results have been good, and the plan has the advantage of being available for outlying points. We now have about a hundred of these machines in operation and are cleaning between four and five hundred cars a day with them. The system of cleaning cars by vacuum is, according to our observation, proving more satisfactory than we hoped. We have come to the conclusion that we can do better cleaning, as well as cheaper cleaning, with the vacuum process than can be done with compressed air, provided we get a good machine, which has now been developed. This

view is opposed to one I have previously expressed, that compressed air is a more practicable means of cleaning cars than is the vacuum system.

DR. W. S. RANKIN, North Carolina: I think a matter of a great deal of importance in connection with common carriers and interstate quarantine is the defining of the relative responsibilities and duties of the Federal and State governments in these matters. Now, the regulation of common carriers and of interstate quarantine is a matter naturally that the Federal Government has to carry out, or 90 per cent of it. You will all grant that the Federal Government has to pass the regulations. They have to be Federal regulations. If that is true, it seems to me that the Federal Government should see that the regulations are enforced. I think it is administrative wisdom for the government that passes an act to see to its enforcement. If the State of North Carolina passes a law, say a health law, my department sees to it that the law is enforced. If we see that some counties are ready for it, we go to them and say, "You pass this law." If the county has to enforce it, the county will pass it. I think it is the business of a government which passes an act or a set of rules and regulations to enforce those regulations. It should be a Federal policy and not a State policy to pass and enforce regulations concerning common carriers. I think we should reach some conclusion as to the relations of Federal Government and State governments in regard to common carriers and interstate quarantine. I may introduce some time today a resolution to appoint a committee to define the relations between the Federal and State governments in matters of interstate quarantine.

DR. TALIAFERRO CLARK, Surgeon U. S. Public Health Service: There is one phase of the problem of common carriers it is well to mention, though doubtless proscribed for deliberation by this body, owing to the limitation of its activities, and that is the artificial illumination of cars carrying passengers. It seems to me that this body of sanitarians might well take into consideration the influence of improper illumination of passenger cars upon the visual health of a large body of the traveling public. Those of us who have traveled in the byways of many of our States, where the routes are short, know that the lighting

of passenger coaches becomes more and more defective the farther we advance from the main lines of travel. Probably on not one of these trains is the artificial illumination suitable or sufficient to enable one to read with comfort.

DR. L. L. LUMSDEN, U. S. Public Health Service: In regard to the obligation of a government to enforce the laws enacted by its own legislative branch, one of the practical difficulties the Federal Government would have in this instance is that there is no penalty attached to the fundamental law upon which these regulations are based. We all recognize that a law without a penalty clause has simply the effect of a moral law.

A bill was introduced in the last Congress which carried no penalty clause. It passed the House of Representatives by unanimous consent. Before the Senate Committee on Public Health and National Quarantine it was considered very thoroughly. From that committee it came out with a penalty clause attached, making it really a potent law. When it reached the Senate floor the penalty clause, due to a clerical omission, was not attached. In that shape it immediately passed the Senate unanimously. A member of the Senate committee, who was in charge of the bill, later on discovered the clerical omission and had the measure returned to the calendar for reconsideration with the penalty clause attached. Every time it came up on a call of the calendar after that it was objected to, and never again was it considered on the floor of the Senate. If such a committee as Dr. Rankin suggests is appointed, I should like to have their attention brought to the legislative aspects of this matter.

DR. S. J. CRUMBINE, Kansas: I wish to say that the necessity for the various States preventing these irregularities by resolution is all the more apparent if what Dr. Lumsden says is the case. In our State we may promulgate regulations which may be enforced under penalty, and I presume that other States have the same authority.

DR. J. W. TRASK, U. S. Public Health Service: With reference to the interstate quarantine regulations, which we discussed yesterday, I suppose most of you noticed that the law under which they will be promulgated, and which was passed in February, 1893, provides that any regulations issued shall be en-

forced by the State or local health authorities. If they do not enforce the regulations, it provides that the President may do so. It is proposed, and in fact the Secretary of the Treasury has approved a plan, to divide the country into sanitary districts. An announcement and a map showing the districts will be published in the Public Health Reports in the very near future. In each sanitary district, which will include in most instances two or three States, there will be a district officer. In those localities or sections of the country where the States, for one reason or another, do not care to assume the responsibility of enforcing the interstate quarantine regulations the Secretary of the Treasury is prepared to assume the burden, and it will be one of the duties of the interstate sanitary officer to see that the quarantine regulations relating to the interstate spread of disease are enforced. Without going into a discussion at all, but merely giving you my personal belief, I think that not only the law, but the regulations under the law will be found enforceable. The whole plan is merely an effort to establish a workable coöperative system whereby the States and the Federal Government can be mutually helped.

DR. CRUMBINE: Is it designed that these regulations be enforced on lines operating entirely within a State?

DR. TRASK: An interstate train, even though it carry intrastate passengers, will come under it.

DR. CRUMBINE: Will they apply to electric lines?

DR. TRASK: Electric lines will come under these regulations if they run from one State to another.

DR. FLANNAGAN: What if the interstate lines carry intrastate passengers?

DR. TRASK: I am of the impression that conditions would have to be very peculiar for a train to be considered intrastate on an interstate railroad. The train would have to be a very definite train making an intrastate run.

At this point Dr. Rankin introduced a resolution calling for the appointment of a committee to define the relations between State and Federal governments, which was referred to the Committee on Resolutions.

DR. E. R. KELLEY, Massachusetts: If any one will take the trouble to study Dr. Crowder's analysis of the present rules and regulations, he will find that there is a good deal of dissimilarity between the different parts of the country. It should not be a very difficult thing to get the States to adopt similar regulations. There are a number of lines in some States, electric lines and boat lines, which are distinctly intrastate and with which the Federal Government has no possible concern.

I would like to emphasize the practical value of Dr. Rankin's suggestion, and carry it even further by suggesting to the committee that it consider taking the Federal regulations, which seem to be satisfactory, as a minimum standard, and carry them further.

The report of the Committee on Sanitation of Common Carriers was adopted, and, on motion by Dr. Woodward, the committee was continued, with instructions to report at the next annual meeting of the Conference along the lines of Dr. Rankin's resolution. This motion was seconded by Dr. Rankin, and the resolution was rereferred from the Committee on Resolutions to the chairman of this committee.

REPORT OF COMMITTEE ON MODEL STATE, DISTRICT, AND COUNTY HEALTH LAWS.

DR. E. F. McCAMPBELL, chairman: This report must be considered as a progress report. I must say, also, that the subject is of such importance that the committee does not wish to avail itself of the remedy Dr. Kelley suggested. The Committee on Model District Health Laws should be carried for some time yet. I shall be obliged, however, if the Conference will apply the remedy suggested by Dr. Kelley to the personnel of the committee, but not to the committee itself.

The members of the Conference will recall that at the last meeting there was presented a so-called model bill. The committee gave considerable time to the drafting of what they felt to be a model bill for district health supervision. We may present a model bill, including features to be worked up to in the future, or we may present a bill which is to be regarded as a rather practicable bill. I fear very much, from my own observation, that the bill submitted last year by the committee, while

model in a great many respects, is a bill that will not be for some time adopted with any very great degree of success by the various States represented here in this Conference.

Furthermore, I may say that one reason for continuing the study of this question is that a great many State legislatures are now in session. In certain of these legislatures bills have been introduced carrying out the same general intent as the bill presented to this Conference last year. It seems to the members of the committee that after the close of the "present legislative epidemic" over the country certain valuable information may be secured which will be of service to the committee in formulating certain amendments to this bill, and also, perhaps, in suggesting an entirely different bill.

I beg the indulgence of the Conference to refer to the State of Ohio particularly, because we have here a means of studying the attitude of the general public toward the bill. The bill as submitted last year to the Conference was submitted to the Legislature of the State of Ohio. The committee to which it was referred made a very close study, and as a result of their study of it, several changes were made.

The general objection last year was that it took away from local communities the power of home rule. We have in this country generally an extensive feeling for home rule. There is a general tendency to place not only taxation and agricultural matters, but also public health matters, under home rule. And while it stands out very prominently that the State has certain definite functions which cannot be taken away from it, and that public health administration should be under its control, yet this is not entirely the view of the general public. The model bill has been modified in quite a number of particulars.

Objection was raised on the point that State Health Boards had no right to arbitrarily make health districts. That objection was quite decided, that the districts in the State should be made definite by law, and while it was perfectly proper to make a maximum requirement of the population, etc., of the districts, the law itself should not be in the nature of a blank provision, but should be definite. In taking up the matter, it became necessary to make a study of the population and tax duplicates of the various counties and to divide the State into several districts,

with health officers drawing a minimum salary of \$2,000, etc. The State of Ohio, for example, was divided into fourteen districts. I may inform you that the same general objection raised in Ohio has been raised in other States. If the constitutions require all county officers to be elective, then it will be necessary to group the counties together, the idea being to get away from electing a health officer who is a county official. It seems an amendment is necessary in our model law to provide for such cases.

The question is ever present as to what authority State health authorities should have, or what should be the extent of their authority, to enter upon private premises for the purpose of making inspections. There seems to be a decided opinion on the part of the public that while it is perfectly proper to enter upon private premises for the purpose of investigating communicable diseases, yet it is improper to investigate the health hazards, etc., in certain industries. We have been investigated to the limit in Ohio. The Industrial Commission comes, the Department of Charities and Labor, the State Board of Health, the Federal Labor Bureau, the Federal Bureau of Child Welfare, the United States Public Health Service, etc., and all go over many of the same questions. The manufacturer feels that his personal rights are being invaded, and while he may open his factory to an inspection, he objects to its being repeated. So the manufacturing interests of the State are loath to agree to any broad law which enables the State Board of Health to make sweeping regulations. Now, if we are making up a model bill, in one sense, we can very properly include all these things that we should have. If we are making up a workable law, I think it is desirable to leave them out and let the State health departments supply the deficiencies.

The general proposition as to what the qualifications should be for a district health officer were carefully studied last year by this committee; and we decided that we could not get an efficient health officer for less than \$2,000 a year, and that he should be chosen by civil service. Now, there has been a flare-back in civil service in Ohio. In our own State Health Department I have been able to get more efficient helpers without civil service than with it. Civil service in Ohio has not materially

benefited health work. It is a protection for incompetency, and there are many things which operate against efficiency. Considering this question in connection with local health officers, it seems very desirable to protect these men by civil service, requiring their appointment from lists submitted by the State Civil Service Commission after competitive examinations. I am convinced that we must stand by that, because in the local districts the opposition to a State officer is less than to a purely local officer. So I think we must keep that provision, provided the State Civil Service Commission gives sufficiently exhaustive examinations.

The question of the compensation may invite an attack from some counties. In some counties the county auditor does not get more than \$1,000 a year, and of course if you talk of paying a health officer \$2,000 a year it produces considerable opposition, even if you group several counties into a district and provide for the appointment of a district health officer. Every one of the county officials in nine out of ten cases draws considerably less than \$2,000 a year. It all goes back to the question of education. You must show the public that public health work pays. So we stand for the same amount of money as a minimum salary. We do not believe you can get a person for less than that amount. Of course, the subdistrict health officers as provided in the bill will not be required to devote their entire time to the public health work, and can be paid proportionately; but again the committee feels that there should be some qualifications provided for by examinations.

The other changes made in the model law deal with details in which I presume the Conference is not particularly interested, being those which would have to be modified in any State where it is introduced and passed.

We are up against the question of the opposition of the irregular cults. In some States where this bill has been introduced the ever-present question of the medical aspects of the proposition confronts us. I think we should call attention to the nonmedical aspects of the bill, in order to stop, if possible, the opposition from the Christian Scientists and other cults. The bill which was introduced in Michigan, I understand, caused a great deal of opposition from these interests. This was not the

model bill, but one similar to it. We have had the same trouble in Ohio. To my mind, the general question of showing the public that public health work is not essentially medical is important.

I will submit here the draft of the bill which was introduced in the Ohio Legislature, and which embodies the changes of the committee as a whole, with the understanding that it is a progress report, and that we may want to modify our views later.

Mr. President and Members, Conference of State and Provincial Boards of Health of North America:

Your committee appointed to draft a model district and county health law presented the draft of a proposed bill at the Conference held in Washington, D. C., June 19-20, 1914. The bill suggested by your committee at that time was introduced in modified form in the legislatures of several States and did not seem to be favorably received in any instance. Your committee set about to discern, if possible, the objectionable features. It is not necessary at this time to recount these features in detail. The general criticism, however, was that the bill as proposed provided for rather excessive authority for the State health agencies and did not preserve sufficiently the rather popular home-rule idea in government. The objection was also set forth that the districts should be definitely provided for in the bill, and that the formation of these districts should not be left to the central health authority.

After taking into consideration the various objections which had been raised, your committee modified the original bill suggested in quite a number of particulars. The bill as redrafted is herewith presented.

A BILL TO DIVIDE THE STATE INTO HEALTH DISTRICTS; TO PROVIDE FOR THE APPOINTMENT OF DISTRICT HEALTH OFFICERS, DEPUTY DISTRICT HEALTH OFFICERS AND ASSISTANTS, AND TO PRESCRIBE THE POWERS AND DUTIES OF SUCH OFFICERS, DEPUTIES, AND ASSISTANTS.

SECTION 1. To provide for the preservation of the life and health of the people of (*State*), and to provide for the administration of public health matters, the State is hereby divided into the following consecutively numbered health districts:

District No. 1 shall comprise-----counties.
District No. 2 shall comprise-----counties.
District No. 3 shall comprise-----counties.
District No. 4 shall comprise-----counties.
District No. 5 shall comprise-----counties.
(Further division of the State into definite districts as necessary.)

SEC. 2. Each health district shall be subdivided into subdistricts consisting of counties. Each county in each health district shall constitute a subdistrict.

SEC. 3. The county commissioners of each county in each health district shall elect one of their number to form, with the other county commissioners so elected, a district health board. Such board shall organize by electing one of its number president. The county auditor of the largest county in the district shall act as clerk of the district board of health. Such auditor, in person or by deputy, shall attend all meetings of the board and shall keep a record thereof in a book for such purpose. The district board of health shall meet semi-annually and not on other occasions, unless such meeting is necessary to appoint the successor to a district health officer or a deputy district health officer. The members of the district board of health and the auditor who serves as clerk shall serve without compensation, but their necessary traveling and other expenses, incurred by attending a semiannual meeting, or a meeting held for the purpose of appointing a successor to a district health officer, or a deputy district health officer, shall be paid out of the county treasury when properly certified by the president and clerk of the district board of health.

SEC. 4. For each health district a health officer shall be appointed, and for each subdistrict a deputy health officer shall be appointed in the manner hereinafter provided. The deputy health officer shall have as many assistants as may be necessary, provided that the number of assistants shall not exceed the number of townships in such subdistrict. Each assistant shall, where possible, be a resident of the township for which he is appointed, and, where possible, each assistant shall be the local registrar.

SEC. 5. The appointment of district health officers shall be made by the district board of health of the district for which the appointment is to be made, subject to approval by the (State Board of Health or Commissioner of Health) from a list of persons certified by the State Civil Service Commission after competitive examination. No person shall be eligible for such an examination who is not a physician duly licensed to practice medicine under the laws of this State, or a person possessing the degree of doctor of public health, or an equivalent amount of training along public health lines. Candidates possessing these qualifications shall be examined in hygiene, sanitation, and subjects relating to public health and the prevention of disease; and the moral character, experience, training, and general fitness of candidates shall also be considered.

SEC. 6. Candidates for the position of deputy district health officer shall possess such qualifications as may fit them for their duties and shall be examined and certified in a manner similar to that provided for district health officers. Deputy district health officers shall be appointed by the duly appointed and qualified district health officer of the district from eligible lists submitted by the State Civil Service Commission.

SEC. 7. Assistants to the deputy district health officers in each subdistrict shall be appointed by the duly appointed and qualified deputy district health officer, provided the registrar of any township is unfit for the position, or cannot serve for any other valid reason. Assistants shall not be in the classified service list, and each assistant shall serve as long as he holds the position of local registrar, or, if he is not a registrar, until his successor is appointed and qualified.

SEC. 8. District health officers and deputy district health officers shall continue to hold office unless removed for cause and by due process of law. Each district health officer shall furnish a bond

satisfactory to the district board of health in the sum of five thousand dollars for the faithful discharge of his duties and for the preservation of all official records which may come into his possession.

SEC. 9. The compensation of the district health officer shall be fixed by the district board of health, subject to approval by the (State Board of Health or Commissioner of Health), but in no case shall such compensation be less than two thousand dollars per annum and all traveling and other necessary expenses. The compensation of the deputy district health officer shall be fixed by the district board of health, subject to approval by the (State Board of Health or the Commissioner of Health). The compensation of assistants shall be fixed by the district board of health. The district health officer shall furnish an estimate of the amount necessary to pay salaries, traveling and other expenses, to the district board of health, and the district board of health shall certify such estimate to the budget commissions of the counties composing the district, which shall make proper allowance for such expenses and salaries. These expenses and salaries shall be equitably apportioned for each of the counties comprising the district on the basis of the tax duplicates of such counties. The compensation of the district health officer shall be paid monthly from the county treasuries of the counties forming the district, on warrant of the county auditors. The compensation of deputy district health officers shall be paid monthly from the county treasury of the county forming the subdistrict on the warrant of the county auditor. The compensation of assistants in townships shall be paid monthly on the order of the township trustees out of the general fund of the township.

SEC. 10. District health officers shall at all times keep their respective offices open during business hours on each business day. They shall devote their entire time to their respective duties.

SEC. 11. The district board of health shall furnish the district health officer suitable office rooms at some place to be designated by the (State Board of Health or Commissioner of Health), and such clerical and stenographic assistance as may be necessary, and all maps, stationery, blank forms, books, supplies, furniture, and other equipment necessary to the proper discharge of his duties and safe keeping of his books and records.

SEC. 12. The district health officer shall have jurisdiction throughout the district for which he is appointed except in any incorporated city located therein. He shall have the right of entry into any workshop, factory, dairy, creamery, slaughter-house, or other place of business or employment, or any public dwelling-house or place where persons may dwell or congregate, when in pursuit of his official duties. A deputy district health officer shall have jurisdiction throughout the subdistrict for which he is appointed, excluding any incorporated city located therein.

SEC. 13. The district health officer shall enforce all provisions of the law relating to the preservation of the life and health of the people, and he shall carry out the orders and instructions of the (State Board of Health or its executive officer, or Commissioner of Health), and shall make such investigations and reports as said board or its executive officer or Commissioner of Health may require. He shall, when required by the (State Board of Health or its executive officer or Commissioner of Health), with the help of his deputies and assistants, inspect and report upon the sanitary conditions of streams and other sources of public water supplies; schools, schoolhouses, dairies, creameries, slaughter-houses, workshops and

factories, mines and quarries, and other places of employment, and of all places where offensive trades or industries are conducted in his district; and he shall also make careful inquiry, when required by said (board or its executive officer or Commissioner of Health), as to the effects of various kinds of employment upon the health of the employees and operators; and in all such investigations and inquiries he shall have the power to administer oaths in regard to all matters pertaining thereto. He shall respond promptly when called upon for advice or assistance by any deputy district health officer within his district.

SEC. 14. District health officers and deputy district health officers shall succeed to and have all powers and duties now conferred upon or required of boards of health of villages and townships, except that the authority to adopt general orders and regulations for the protection of the public health, the prevention or restriction of disease, and the prevention, abatement, or suppression of nuisances shall be conferred only upon district health officers, and *Provided*, that all such general orders and regulations as may be adopted by district health officers shall have no effect until approved by the (State Board of Health or Commissioner of Health).

SEC. 15. It shall be the duty of each deputy district health officer to report to the district health officer within whose jurisdiction he serves, immediately upon the appearance thereof, the occurrence of all cases of infectious or contagious disease in his jurisdiction. The district health officer shall make such reports as may be required by the (State Board of Health or its executive officer or Commissioner of Health). Failure of a deputy district health officer to report to the district health officer, or of the district health officer to report to the (State Board of Health or Commissioner of Health), shall constitute sufficient cause for removal from office.

SEC. 16. The district health officer may, when authorized by the district board of health and the (State Board of Health or Commissioner of Health), establish a laboratory for the free examination of samples of food, milk, or water suspected of being adulterated or impure and injurious to health, and for diagnostic purposes in suspected cases of rabies, diphtheria, tuberculosis, typhoid fever, and other contagious or infectious diseases injurious to the public health; and he may appoint, with the consent of the district board of health and the approval of the (State Board of Health or Commissioner of Health), an assistant or assistants competent to make such laboratory examinations; the compensation of such assistant or assistants shall be fixed by the district board of health and approved by the district health officer, and paid in the same manner as the compensation of the district health officer. Such examinations shall be carried on in the manner and by such standard methods as required by the (State Board of Health or Commissioner of Health).

SEC. 17. Where any city or college in or near a district maintains a laboratory for sanitary examinations, the district health officer and commissioners of the county or counties in the district in which such city is located may enter into an arrangement with the proper authorities of said city or college for the examination of such specimens and samples from the district outside of said city as may be submitted by the district health officer, his deputies, and such person or persons as he nominates. Two or more districts may, by agreement of the district health officers and the county commissioners of the districts, with the approval of the (State Board of Health or Commissioner of Health), unite in maintaining a laboratory for such examinations as are specified in the preceding section; the cost to be

equitably apportioned between such districts on the basis of the tax duplicate, exclusive of incorporated cities situated therein.

SEC. 18. It shall be the duty of the district health officer to inspect all farms, dairies, and other places where milk is produced, sold, or offered for sale, and no milkman, dairyman, grocer, or other person shall distribute milk or cream without first securing a permit from the district health officer, the cost of said permit not to exceed one dollar per annum. No permit shall be granted to any person until the district health officer has made an investigation and inspection of the premises, herd, and utensils for the distribution of milk, and any permit granted to any person selling milk may be revoked by the district health officer if he gains knowledge of any insanitary practice, or finds the milk impure or adulterated. The moneys received for such permits shall be paid monthly into the general fund of the county in which such licensee resides.

SEC. 19. All acts or parts of acts inconsistent with this act are hereby repealed.

Respectfully submitted,

E. F. McCAMPBELL,

Chairman;

S. J. CRUMBINE,

G. H. SUMNER,

Committee.

The report of this committee was received and the committee continued.

REPORT OF COMMITTEE ON VENEREAL DISEASES.

The report of the committee was read by Dr. J. N. Hurty, chairman.

There seems to be no reason for believing that any reduction of syphilis and gonorrhea has occurred since the last report of this committee. But this is to be expected, for real war against these plagues has not yet begun.

The American Social Hygiene Association has energetically continued its recruiting, organizing, and training of forces, in which work it has the approval and moral aid of all real physicians and all members of society of high metal whose attention has been drawn to the question. And although true, as said, there has been no actual reduction, still, progress has been made. The Hygiene Association has with full understanding adopted plans that are wise and which will certainly produce good results. Its announcement says it seeks through—

Investigation to obtain the facts on each phase of its subject;

Education to develop public opinion;

Demonstration to prove the utility of measures proposed;

Application of tested measures to secure Nation-wide results.

The great need, before effective action is possible, is better statistics. Our present estimates of the prevalence of venereal diseases

are too imperfect to afford a foundation of sufficient firmness upon which to base successful action. And as soon as organization will permit, first efforts must be put forth to secure the mathematics of the great problem. At this time we know only that syphilis and gonorrhea bulk big as enemies to health, life, and pursuit of happiness.

Only through the medical profession is it possible to collect needed data, and, therefore, the first step is through education and proper appeal to secure the hearty coöperation of all physicians. This, we all know, is not a small task. Indeed, there are not a few blocks, such as medical ignorance, petty jealousy, competition, false notions about individual rights, which stand boldly in the way. The first and most general argument advanced by physicians against reporting cases of venereal diseases is they would be legally liable, because the statutes in most States insist on the inviolacy of the "medical secret." This is not strictly true, for certain State Supreme Courts have decided that, while the physician shall not disclose what a patient may "tell him," he has the legal right to testify to or to disclose anything relating to the physical condition of the patient that he may have found out by examination. This judicial decision has effectually destroyed the sanctity of the "medical secret." Of course, it would be slander and an actionable offense for a physician to wrongfully report a patient as being affected with a venereal disease, but the possibility of a competent physician making such an error is too remote for consideration.

When a physician announces himself as opposed to a law requiring the registration of venereal diseases for the reason that he would be disclosing the sacred secret of his profession, he simply invokes a personal equation in order that he may deem himself justified in placing self above law.

It seems safe to assume that 50 per cent of practitioners, possibly more, are ready and willing at this time to report their venereal cases, provided that proper official secrecy is maintained. Those who stand out against reporting must be driven by public opinion and by force of law. That a strong public opinion is not hard to secure, and already not far distant, appears from the fact that a packed theater full of men, over two thousand, in Indianapolis at a Sunday afternoon meeting, loudly applauded the statement of the speaker that "within less than ten years not only would venereal diseases be reported by physicians, but the public would so firmly demand it that no weak-kneed doctor would dare refuse."

With registration, other constructive steps for the mitigation of the social diseases have been suggested, and not the least among them is the establishment of a "*morals police*" whenever peace police are employed. Indeed, it is a question whether or not "*morals police*" should not first be installed. While a morals police might be consti-

tuted of both male and female officers, each of whom would have a sphere of usefulness, the most important thing immediately is to attach to every police force a number of women specially trained and adapted for reclaiming work.

We recognize the social diseases as being largely a question of moral outlook, and their public control should not be left entirely to men. The wise treatment is largely that of prevention, and here the work of good women would be of the utmost value.

The necessary statutes must be most carefully studied. This is a mighty question. Segregation and examination, with health certificates, must be absolutely abandoned. They are not only useless, but harmful.

Nature relentlessly punishes those who acquire syphilis, even those who do so innocently. It, therefore, would not be without precedent for the statutory law to also administer punishment. Anyhow, to establish public hospitals in which to gratuitously treat moral offenders appears to be a method more likely to encourage than to discourage immoral action, for, as said by a young man at the club, "Why be virtuous when cure is sure and free?"

Man must learn to be continent. In every way, incontinence is opposed to individual, national, and race betterment. The young must be properly instructed. This step should not longer be delayed. The child is born to reproduce his kind. Not to impart to him necessary sex and procreation knowledge is a sin of omission which is attended with fearful results.

SUMMARY.

There is no substitute for righteousness. To seek cure and depend upon it is not wise. We must begin with the children to eradicate the evils of society. Secure to every child its inalienable right to be well born; its inalienable right to be trained wisely in mind, body, and soul; its inalienable right to be protected from evil persons, from evil influences, and from disease. If we will ceaselessly strive to secure these rights to our children, diseased and delinquent adults will be greatly reduced, and relief and reform work will not continue to burden us as before.

Dr. C. F. DALTON, Vermont: Dr. Hurty has asked me privately to say something about the new law we have in Vermont. First, I want to say that this law is not the result of the efforts of the State Board of Health. It was put through by a medical man who was a member of the State Senate, and who said that he wanted to make it unpopular to have syphilis or gonorrhea.

Two years ago the Legislature passed a law providing for the reporting of venereal diseases. That has been lived up to, to

some extent, for we have had quite a number of reports. This new law provides a fine of \$500 for any person who marries, knowing that he has syphilis or gonorrhea. It also imposes a fine of \$500 for any one who has sexual intercourse, having either of these diseases. There is a fee of 25 cents for reporting cases of these diseases, and a fine of \$200 is imposed for not reporting. The law also provides for quarantining and treating cases of these diseases. As I say, we are not responsible for this law, but we are going to see what we can do with it. Probably there will be no general regulations made in regard to it. We think that by treating each case individually, that is, the flagrant cases, we may be able possibly to quarantine some of the female prostitutes, and also some of the male prostitutes who are spreading gonorrhea, by putting them in institutions.

That is the law in Vermont. I do not think there is anything like it anywhere else in the United States. It is a pretty big responsibility, but perhaps two years from now we can tell you something more about it. I may say that the law does not go into effect until June 1st, but some of the doctors have already gotten hold of it and reports are coming in better than before. The new law provides that the report shall be by name, but provides that the names shall not be public property, being only for use in ~~court~~ of court procedure.

DR. M. M. SEYMOUR, Saskatchewan: In the Province of Saskatchewan the Commissioner of Health has power to quarantine, if he considers it necessary, cases of syphilis or gonorrhea. This has been done with very satisfactory results.

DR. HURTY: I think that we are too much given to alleviation. We are obsessed with the idea of cure. The thought pursues me. We have too many drug stores, too many doctors, too many hospitals, too many of all the agencies which relieve people of the punishment which they deserve. We bring disease upon ourselves, and while some acquire disease innocently, Nature does not excuse. Then there is the human heart, with its tenderness and charity, and so there seem to be two opposing forces—the inexorable law of Nature and pity. That is the way the problem presents itself to me. Shall we reward virtue, as Nature does, or reward delinquency, as we are doing in very many instances? Shall we keep on rewarding delinquency?

Shall we permit diseased people to be born, as we are doing, to fill more hospitals? One thing is to try to stop the marrying of the unfit to marry. So, as I have said before, if it were written of the venereal diseases, as it is written of cholera, that those who acquire them will almost certainly and surely die, man then would be more virtuous. There is no need and no excuse for having venereal diseases.

I met a Japanese physician, Dr. Miyama, at the St. Louis World's Fair, and I asked him what most interested him in America. He said that what he did not understand about America was why we have so many drug stores, so many doctors, and so many hospitals. He asked, "Haven't you learned how to live?" That view struck me hard.

606 and gonococcic serum cannot take the place of righteousness.

The report of the committee was accepted and the committee discharged.

REPORT OF COMMITTEE ON COURSE OF STUDY IN SANITATION FOR WOMEN'S CLUBS.

Dr. S. J. Crumbine, chairman: I have to announce, for the committee, that this committee was appointed only very recently, and the report is in process of traveling around to the different members. We hope that it may be completed in the early fall, and the literature be published by the American Medical Association, as they promised to do, and distributed to the women's clubs.

The report of the committee was accepted and the committee continued.

REPORT OF COMMITTEE ON RECENT ADVANCES IN SANI- TARY LAWS, ORGANIZATION, AND PRACTICES.

The report of this committee was read by Dr. S. J. Crumbine, chairman, and is as follows:

To Secretaries of the State and Provincial Boards of Health.

GENTLEMEN:—The response to the circular-letter sent out by your committee to the State Boards of Health was, we confess, disappointing. Only sixteen States responded, and those responses were made

in a rather indefinite and incomplete fashion. Some of the States responded by simply sending a pamphlet containing the laws, rules and regulations of their State. It was understood by the committee that only recent legislation of importance, or new methods in public health work, or new and convenient blanks, posters, or pamphlets used for carrying on certain phases of public health work that might be of interest to other State Boards of Health should be comprehended in the committee's exhibit. Therefore, a considerable part of the material that was sent to the committee is not really usable, in that it does not come within the scope and purpose intended by the committee.

Indiana.—The report from Indiana seems to be confined entirely to their division of foods and drugs. The most notable and interesting publication from that department is their poster on medical frauds. This poster gives very definite and concise information to the ordinary layman, in that it gives the name of the nostrum, the manufacturer, the manufacturer's claim, and the contents of the article as determined by analysis; the retail price as it is sold on the market, and the actual value of the ingredients found in the preparation. For illustration: Epp-o-tone, manufactured by La-Cottell Manufacturing Company, Chicago, Ill. Manufacturer's claim, complexion beautifier; contents, epsom salts and borax; retail price, 50 cents; value of ingredients, 2 cents. And so all down the nauseating list. If these posters have been widely distributed in the State of Indiana, one of two things will happen: either a very greatly reduced sale of nostrums or else a total indifference of the people to valuable information supplied by their efficient Board of Health.

They have a small card for inclosure in mail going out from the Indiana Board of Health, printed in red ink, which must eventually prove of great educational value. This card reads as follows:

IN THE INTEREST OF GOOD BUSINESS
AND YOUR PERSONAL WELFARE.

Do you *know* the employees of your grocer, baker, butcher, and milkman are

FREE FROM DISEASE?

The Indiana law *forbids* persons suffering from consumption, venereal and other infectious or contagious diseases from having anything to do with the food supply, and punishes by fine and imprisonment both them and their employers for violation of the law.

If you know of instances where the law is violated, tell your HEALTH OFFICER and write the facts to

H. E. BARNARD,

State Food and Drug Commissioner.

Idaho.—The State has passed an antinarcotic law, framed very closely after the Harrison National act.

Louisiana simply sent copies of a number of their recent bulletins. The chief things of importance as gathered from these bulletins seem to be their general sanitary clean-up of the State and their vigorous fight on patent nostrums. Unfortunately, there is no material for display. It probably would have been highly appropriate if a copy of the charges against the President of the Louisiana Beard, brought by the manufacturer of a certain famous (or rather infamous) nostrum, could be displayed, with such suitable comments as the committee would feel like making in the matter.

Probably the most notable work of the Louisiana State Board of Health in the past year is the "Bat the Rat" campaign, which has been carried on with such vigor by their authorities in conjunction with the United States Public Health Service.

Maryland.—The two most notable laws passed by the State of Maryland in relation to public health, copies of which were submitted to the committee, were those pertaining to the division of the State into ten sanitary districts and that providing for supervision and control of the natural waters of the State by the State Board of Health. No special comment as to the degree of success thus far attained through the enactment of these laws was submitted by that State.

New Hampshire.—Of the blanks submitted, those worthy of special mention are the ones for certificate of industrial diseases, the quarantine card for suspected communicable diseases, and the blank used for notification of nuisance.

North Carolina.—The only large card or poster was submitted by North Carolina, which is a very striking one, indeed, on typhoid fever. The marginal pictorial form, similar to that splendid card gotten out by the Florida Board of Health on "Flies," is a feature of this new poster.

Probably the most notable achievement of the North Carolina State Board of Health the past year is the accomplishment of having instituted eleven full-time health officers in as many counties of the State. Their new law providing that counties may employ full-time health officers makes possible the rapid development of a system which Dr. Rankin has so successfully established in his State.

The press articles gotten out by the North Carolina Board are models of concise, readable information.

New York.—Among the many pamphlets and blanks submitted by the New York State Board of Health, the ones most worthy of mention at this time are those relating to the work of the division of child hygiene. The control of milk that New York has succeeded in establishing is graphically displayed in the blanks used in the control

work. The division of publicity and education is doing most excellent work, as indicated by the choice literature issued by that division.

Oregon.—There were two new laws of importance passed in Oregon the past year, one on the prevention of blindness, imposing a duty upon all midwives, nurses, or other persons having the care of infants, also upon the health officer, and fixing a penalty for the neglect thereof, and an act to protect and preserve the purity of municipal and domestic water supplies in the State of Oregon, and to prevent the pollution of streams, and to give the State Board of Health authority in the premises.

Oregon also passed a registration law, framed after the model registration law.

Their card notice which is used upon apartments which have been occupied by consumptives is also worthy of mention.

Ohio.—The only law submitted by the Secretary of the Ohio State Board of Health is that authorizing the Board to prepare antitoxin for distribution for the cure and prevention of diphtheria.

Vermont.—Submitted a number of new laws, the most notable being an act for the prevention of venereal disease, and an act to regulate the sale of opium, morphine, and other narcotic drugs. It occurs to the committee that the act for the prevention of venereal disease is the most drastic legislation ever enacted in this country on that subject. The result of this legislation will be watched with very great interest by other State Boards of Health.

Virginia.—The most notable achievement of Virginia, from the literature sent to the committee, is their campaign against malaria; this includes leaflets for inclosing in letters, a splendid bulletin, "A Short Catechism on Malaria," for use in the schools of Virginia, and card posters calling attention to the dangers of mosquitoes. If Virginia has the same splendid success in reducing the incidence of malaria as the State Board of Health has had in its campaign against typhoid fever, she is to be congratulated.

West Virginia.—The Legislature of West Virginia enacted a new public health law, creating a State Board of Health and defining its duties and powers; this was not submitted in a way to make it possible to have an exhibit of the same. This splendid law is likely to be hampered by lack of sufficient appropriation.

Wisconsin.—Of the literature sent to the committee by Wisconsin, the most notable are regulations put out in placard form relating to camp sanitation in that State.

Washington.—Among the pamphlets and blanks submitted by Washington, the most notable are their special bulletins on certain public health topics, which, in the opinion of the chairman, are specially valuable because of their brevity and conciseness of statement. The blanks used in camp sanitation in that State are interesting.

As for **Kansas**, the most notable law passed by the recent Legislature was that providing for a division of child hygiene, which is, perhaps, notable because of its brevity. Many good bills presented to legislatures fail of passage because of their length and wearisome detail. I have come to the belief that laws written in the briefest space and in the fewest words that will express their real intention are the most likely of passage, and, therefore, the most desirable.

Other laws that might be mentioned are those providing for the periodical examination of all public water supplies, of water served on common carriers, or sold to the public and treated and bottled waters sold or served to the public, providing for the maintenance of the State Water and Sewage Laboratory by fees imposed for the analysis of such waters, putting the Water and Sewage Laboratory upon a permanent financial basis; the law providing for free dental inspection in the public schools, and the law prohibiting false advertising.

The past year our Annual Summer School for Physicians and Health Officers was continued for two weeks of instruction instead of one week, as hitherto. We are gratified to announce that the plan proved to be successful, although there was not quite as large a number in attendance as there was the year before. The chairman, speaking for himself, would be glad to recommend to other State Boards of Health the institution of real schools of instruction for health officers.

It is probable that the most notable literature put out this year is that gotten out by certain commercial interests, coöperating with municipalities and boards of health in a Nation-wide clean-up and paint-up campaign. The literature used in Chicago and other places the committee believes is worthy of notice.

In closing this report we desire to recommend that, if a similar committee is to be continued another year, the various States in responding to the requests of the committee should send in brief abstracts of new laws, rules and regulations, with adequate samples of blanks, posters, or literature which they desire to be exhibited. A bundle of blanks and literature without explanation or comment makes the task most too difficult for the committee on short notice to properly display.

No doubt there are other States not mentioned which have secured new legislation and instituted new forms of work; if so, these facts not having been presented to the committee, we have been unable to feature them in our report.

Respectfully submitted,

S. J. CRUMBINE,

Chairman;

A. J. CHESLEY,

Committee.

DR. W. C. WOODWARD, District of Columbia: I should like to call the attention of the Conference to a regulation recently promulgated in the District of Columbia, which I believe is novel, *i. e.*, a regulation requiring persons who practice fumigating and disinfecting to register and make a record of the materials and methods used. This regulation was the outcome of the death in an apartment house of a child, who had been apparently well and who died rather suddenly after fumigation of a near-by apartment by a private fumigator. We tried our best to find out what process he used, but the fumigator asserted that he took merely some sulphuric acid, put it in a vessel, and poured some water into it. Of course, we did not believe the story, but suspected that some potassium cyanide had gone into the mixture. In any event, if the story were true, the "fumigation" was fraudulent, and if our suspicions were well founded the process was dangerous. We thought that as such a thing as that might happen again, it was the duty of the Health Department to see that persons fumigating or disinfecting did so in a proper way.

DR. G. T. SWARTS, Rhode Island: We really want to go on record, because in 1914 a law was passed for the prevention of ophthalmia neonatorum. The law provided that prophylactic should be dropped into the eyes of every child born in Rhode Island.

We have recently been trying to organize clean-up campaigns. We have also abolished the use of the common drinking cup and the common towel, and have also had passed a law providing for the reporting of occupational diseases. Two or three other laws were passed which will be of much help.

DR. J. H. BENNETT: Rhode Island is such a great big State that we have to have two members of the State Board of Health to make the report. We have prepared and printed some very artistic folders for the care of babies which I think will be of much value. The members of the State Board of Health were given a compensation of \$10 a day at the last legislative session, previous to which they were only allowed traveling expenses.

DR. B. FRANKLIN ROYER, Chief Medical Inspector, Pennsylvania: We have two bills now pending in our State Legislature,

one of which requires medical inspection of all employees working about hotels or having anything to do with the handling of food in public hostleries. This bill will in all probability become a law.

During the session of 1913 a housing law was passed creating a Housing Bureau in the State Department of Health and a Housing Division in the City Department of Health in cities of the first class. The Housing Bureau in the State Department is now being organized, and through it we hope to do a great deal in lessening the prevalence of infectious diseases, particularly tuberculosis.

A new State quarantine law has passed the Legislature and will in all probability be signed by the Governor within a day or two. This will reduce the quarantine period for measles, German measles, mumps, and chicken-pox from twenty-one days to sixteen days, and makes specific provision for having children who have acquired immunity by having had attacks of these diseases, or scarlet fever, to be removed to other premises and after twenty-four hours to return to school.

A law was passed during the 1913 session of the Pennsylvania Legislature requiring the reporting of ophthalmia neonatorum, and in January of this year, by a regulation of the Advisory Board, the occupational diseases enumerated in the model law of the Public Health Service were made reportable, and, in addition, anthracosis was made reportable.

DR. J. D. TUTTLE, Washington: We have one rather interesting new law, passed since I wrote Dr. Crumbine that we had no new legislation. The bill as introduced required all health officers, both city and county, to attend the conference of health officers, and provided that they should receive their expenses and \$5 per diem. We got it through with the county officers required to attend, and with a provision for the payment of their expenses.

DR. J. L. BURKART, Michigan: We succeeded in passing several very good public health laws this year in Michigan. One makes it a misdemeanor for a physician, or any person acting as a physician, to fail to report any of the dangerous communicable diseases to the local health officer. The punishment ranges from

\$10 to \$50 for each offense, and the court may imprison the culprit in default of payment of the fine. We have had a law in force prohibiting the common drinking cup and the roller towel in all hotels and public places. Strange to say, however, schoolhouses are not included.

DR. OSCAR DOWLING, Louisiana: A suit against us originated from the exhibit on our health car, which stopped at Chattanooga, en route from Richmond to Louisiana. Representatives of the Chattanooga Medicine Company visited the car, asked different questions, and served papers just before I left that afternoon. That suit is transferred to the Federal courts, and it is to be tried some time during the month of May.

An analysis of Wine of Cardui shows it does not contain enough of blessed thistle to make a dose. Those of you who have looked at the bottle will find that it is advised for "All menstrual irregularities and uterine and ovarian troubles, when not caused by constitutional deformity or that do not require surgical treatment. Especially for use during pregnancy, at puberty, and at the change of life." We expect to win this suit. We have ample evidence to show that there is fraud in the preparation and fraud in the material.

Our last Legislature passed a law known as the clean advertising bill. We secured our first conviction under it the other day. A man came out with advertisements that a celebrated Chicago eye specialist would be at a certain hotel at a certain time and examine people, etc. The questions at the trial revealed he had never studied anywhere; he had been in the furniture business and decided to become an "eye expert"; so he went to Chicago. We gave him the benefit of the lowest fine, with the distinct provision that he would get out of the State and never return.

The Legislature also provided for means whereby we could secure the registration of births and deaths, and get postmasters to act as local registrars.

DR. J. N. HURTY, Indiana: I want to tell of three little things which Indiana has done and which somehow were not sent to Dr. Crumbine for this report.

Our Governor was induced to issue a proclamation for public health day September 5, 1914. A pamphlet concerning the matter

was sent to school superintendents and health officers. In every school on the appointed day there was given a lesson on health, graded to the knowledge of the pupils to whom it was presented. On that day, also, public health processions were organized. In all, we have a record of 132 public health processions held in the State on that day. The school children were left to plan matters themselves, and the processions attracted a good deal of public attention and newspaper approval.

Another thing was our side show at the State Fair. By special arrangement, daylight stereopticon pictures were shown through ordinary tracing cloth. Lectures were almost continuous. We find that over 50,000 people passed through the tent—and some boys even crawled under the canvas. On the last day we employed two vaudeville performers to do stunts.

The third thing we have tried, and which we think has done a great deal of good, is our Baby Book. The Legislature gave \$4,000 to publish a book telling mothers how to care for their babies. The book is nicely bound in cloth. We send it only to first mothers. We advertised in the papers that every first mother would receive a present from the State and a letter from the Governor. The Baby Book has improved our birth reports and other statistics. We think now that we are getting about 95 per cent of all the births, and that meets the standard set by the United States Statistical Department.

Dr. J. H. TOWNSEND, Connecticut: We have a law for school inspection, making it compulsory for all towns of over 10,000 population to have school inspectors.

We drew up a model bill to prevent the pollution of streams and for the control of water supplies. It was fought by the manufacturers, and the teeth extracted one by one. It has now passed the House and has every prospect of passing the Senate. While it does not accomplish all we wanted, yet it is something to build upon.

Perhaps our greatest achievement is that we have kept the Christian Scientists and antivaccinationists from repealing the vaccination laws.

DR. OSCAR DOWLING, Louisiana: The other day I happened to go into a drug store in Shreveport, and there saw an advertisement like this:

"If you are sick enough to take medicine, CONSULT A PHYSICIAN. Advertising, not merit, sells patent medicine."

Before that we passed a regulation similar to that of New York, so that after the first of September it will be unlawful for any person to sell or give away any patent medicine not having the formula printed on the bottle or on file with the State Board of Health.

DR. CRUMBINE: I have nothing to add to my report and the discussions, except to pray the indulgence of the members of the Conference for next year. When the questionnaire is sent you, in sending your blanks or any new laws or regulations, please send a synopsis of what you are doing, and give information that can be presented in an exhibit. I am sure that this report might be made interesting, and we can each see what the others are doing.

The report of this committee was accepted and the committee continued.

ADDRESSES.

COURSES OF INSTRUCTION IN SANITARY SCIENCE.

DR. M. J. ROSENAU.

Mr. President and Members of the Conference:

I want to express my appreciation of the compliment of being asked to confer with you, because I regard this body of men as holding in the hollows of their hands the safeguarding of the health of the Nation. That is a large responsibility and a large job, but when you come to think about it, in a land like ours it is impossible for the central government to look after the welfare of the individual communities. The central government has its functions, clearly defined, and is well fulfilling those functions through its Public Health Service. The real work, of course, rests with the States, and it is the States which must exercise the power, the coöperation, the coördination, the stimulus, to induce the local communities to carry on the work of public health. It is the power which rests with the States which we have to look to for safeguarding the health of the community.

As we look around, we find that health administration has lagged seriously behind the development of the science. When we come to examine into the reasons, we find that one of them is the lack of diffusion of knowledge, both among the people at large and among those who are employed to carry out this work. And because education is one of the fundamental factors in improving the health conditions of this country, it was an important factor in my decision to take up this subject.

Before we come down to details, I think we should consider a few underlying factors which are of great importance. First, health education must be both special and general. I always lay emphasis upon this point to those who intend to take up public health work. I strongly advise all those going into this work to make a specialty of some branch of sanitary science. It may be bacteriology, it may be the diagnosis of disease, it may be chemistry, it may be vital statistics, it may be any one of several subjects, but I think they should become specialists; that they should not only know something about everything, but everything about something. That is one of the factors which will make better health officers for us in the future.

Now, of course, education for public health service may take a number of directions. It may teach the candidates to become teachers, to become technical experts, to become research scholars, or administrative experts. The last, I believe, is what we are considering. Education, of course, must be practical, but it must be a practical

art based upon a sound science. It is pitiful to see the waste of time, energy, and money through the vain strivings of well-intentioned persons who are trying to carry out public health work without a sound knowledge of the science upon which that work is based, and without a proper proportion of relative values, without a good perspective.

I emphasize this phase of the subject for several reasons; so often young men come to us and want to pick off the flowers and fruit, but are not willing to dig at the roots. They want to build a top-heavy structure. They often feel that they are wasting their time in grinding at some things which do not seem to be practical. But we have a deep and firmly rooted conviction that they must get the fundamental sciences before they begin to enjoy the art of practice.

If we are going to prevent disease, we must have a knowledge of disease. I am going to speak of this because I think my views do not agree with most of those present. If we want to prevent disease we must know disease. But a health officer is not purely a medical officer of health. There is a clear distinction between the medical officer of health and the health officer. We need both, but the country needs especially health officers, with a medical corps of expert diagnosticians. Medical science is only one of the sciences which underlie public health service. But the medical sciences are fundamental and necessary, and in the school for health officers we require all students to get a good grounding in the medical sciences. Candidates for the certificate in public health must know anatomy, not necessarily surgical anatomy; they must know physiology; they must know chemistry, including biological chemistry; also bacteriology and pathology. The first two years in the school for health officers is practically the same as in the medical school. But after that point the road forks, the practitioner of medicine is interested in diagnosis and treatment, the health officer in methods of transmission and prevention. If I am sick and go to a doctor, I want to know two things: First, what is the matter with me; and, second, what can be done to relieve me. I go to a doctor who has specialized in these two things—diagnosis and therapeutics.

The health officer is occasionally interested in diagnosis. It is of importance sometimes to such an extent that an expert must be called in to confirm a diagnosis. He is only secondarily interested in treatment. The health officer is interested in a different thing entirely, the mode of transmission of disease and the methods of prevention. This is not the primary interest of the practicing physician. His primary interest must always be individual, special, and particular. The primary interest of the health officer must be social. Therefore, I believe there is a parting of the roads; I think there is a difference, and my experience has been that doctors do not always make health officers, because they cannot get the right viewpoint, because they have not been able to change from the individual point of view to

the communal. So from this point, instead of studying gynecology, surgery, physiology, diagnosis, pharmacology, etc., the student in the school for health officers studies different things. He studies communicable diseases. He takes a course in the hospital, where he sees scarlet fever, measles, diphtheria, whooping-cough, etc. He learns to recognize them, he sees at first hand the methods used to control them and to prevent their spread, so far as hospital practice is concerned. We do not intend, in doing this, to make a diagnostician of the man, but we do insist that he should see some of these diseases. Then, if there happens to be a case of smallpox near, they go to see such a case. That is practically all the strictly medical work these men get, because the other things take up all their time—vital statistics, epidemiology, preventive medicine, including knowledge of the transmission of disease, industrial hygiene, social service work, sanitary engineering, health administration, sanitary law, sanitary surveys, and a great many other subjects to which the average physician has not time to pay any attention whatever.

Every student makes a sanitary survey of a city. He makes a complete sanitary survey, examines the watershed, brings a sample of the water to the laboratory and makes an analysis, he visits the dairies, classifies the milk, etc., visits the schools, and makes a complete report, including his recommendations as to what should be done to improve the health of that city. That, we find, is a very valuable exercise, because it brings the man directly into line with the sort of work that he is going to do afterward. Some students do this work so well that the communities keep them as health officers. Others make great nuisances of themselves.

I think here is the main bone of contention: Must a man who intends to go into public health work have the medical degree and a medical education, as we now understand them, leading up to and qualifying for the *practice* of medicine? My answer is, "No." I think it is sometimes a disadvantage for a man to have that training, if it narrows the mind to the individual point of view instead of the community point of view. I always advise men to get the medical degree, because of the present condition of things, just as we require them to get a college education before they come to us.

That brings us down to the question of how we manage these different kinds of degrees in Boston. We go on the principle that public health work is a separate profession, and must be made an end in itself. When young men understand this viewpoint they will begin, while still at the high school, or in the first years of college, to make up their minds to become sanitarians and shape their course of studies accordingly. I think it is only fair to reason out that the training for the health office can be approached in different ways. If we think of those who have been successful health officers, we must acknowledge that they can come in very different ways; some from engineering,

like Whipple and Waring; some, like Chapin and Walcott, from medicine; others, like Lederle, from chemistry, still others like Gorgas, from the military service; while the Public Health Service has furnished Blue, McLaughlin, and others. Rose entered through the ministry. The approach can be from different angles.

How do we manage the problem? We have two degrees at present, a certificate and the degree of Doctor of Public Health. The certificate is the minimum degree for those who seem to be qualified for public health work. We take young men who have had two years of college work and give them at least two more years of medical and sanitary science. That is the minimum. Many of them take more. We get a good many medical men, some just graduated; others who have practiced a few years and who are attracted by the idealism of preventive medicine. These doctors who come to us, of course, can get the certificate in one year's work, because they have the fundamentals. They need, however, training in demography and infant mortality, industrial hygiene, etc. So much for the certificate.

The higher degree is the Doctor of Public Health. So far we have had no intermediate degree. That may come with future generations. The doctor in public health corresponds to a doctor in philosophy. The man must have a medical degree or its equivalent as his first essential. He may be a Ph.D., without the medical degree, although of course that is unusual. It is not a prerequisite, if he has the equivalent work in the medical sciences. The requirements for the degree are just like those for the doctor in philosophy, and are based upon original research. The work continues over at least one year. We have from two or three to four or five of these men each year who do research work. In the spare intervals, they build up their own deficiencies in such subjects as vital statistics, sanitary engineering, etc. It is almost impossible to do it all in one year. Most men take two or three years. We want to keep the work on a high plane. After the course is well established, possibly well qualified men may do it in one year.

We know that this is all an experiment; it is all new. We started the degree of Doctor of Public Health only four years ago. This year we have fourteen men in the school for health officers. Some of them get positions before the term is out. I mention this to show that the demand is ahead of the supply. We always get more requests than we can fill. The trouble is to find men with the qualifications and the training to fill the positions open in the different parts of the country.

I thank you very much for your attention.

THE PRACTICAL USE OF DISINFECTANTS.

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The subject of disinfection is one of great interest to health officials because it is inseparably connected with that section of a Health Department that has charge of the control of communicable diseases. Each disease of that class depends on the existence of a specific organism of microscopic dimensions, which lives a parasitic life in the body of man or other members of the animal kingdom. On account of the minute size of these organisms, the ordinary mode of defense used against visible foes, mechanical power, is practically useless in the fight against infectious disease. For many centuries man lived in ignorance of these invisible enemies, fleeing before them when their effects made their presence known, or perhaps falling a helpless prey to them. When human intelligence and thought ultimately demonstrated the presence of certain bacteria in the deadly epidemic diseases, that same intelligence began to seek for a means of defense.

It was soon discovered that disinfectants had been used to some extent empirically. The ancients used heat and sulphur for purposes probably more or less allied to the disinfection of the present day. When bacteriology became a field for scientific work, in the early eighties, the rational use of disinfectants began; since then they have been much used and much abused. In many instances it has been assumed that a disinfectant which is effective under the conditions of the experiments which proved its efficiency is effective under other conditions. We are now beginning to find out that, probably, we have assumed too much concerning the action of disinfectants. There are two terms, often used synonymously, to which I desire to draw your attention at this point, viz., *disinfection* and *fumigation*. While they may be synonymous in certain cases, they are not necessarily so.

The verb *disinfect* is defined by Webster: "To free from infectious or contagious matter; to make innocuous." To *fumigate* is "to apply smoke, gas, or vapor."

When we fill the hold of a vessel with sulphur dioxide in the absence of moisture, or with the gas, or hydrocyanic acid gas, for the purpose of destroying rats, mosquitoes, or other animal carriers of disease, we do not thereby effect disinfection.

If sufficient moisture be introduced with the sulphur dioxide, the gas then becomes a disinfectant vapor and attacks bacteria. A similar action takes place when formaldehyde gas is used under proper conditions. Therefore disinfection and fumigation do not always mean the same thing.

In this paper I shall consider as disinfecting measures any measures which attack the specific cause of disease directly: as fumigating measures, those which, by the use of gas, smoke, or vapor, attack the specific cause indirectly, through the destruction of intermediate hosts or carriers other than man, such as mosquitoes, rats, fleas, flies, etc.

Although it is not customary to consider vital statistics in the division of communicable diseases, I trust you will pardon me if I consolidate these two divisions for a few minutes. Bacteria, as well as men, have a "birth" rate and a death rate; both rates depend on environment. The birth rate is high under favorable conditions, and falls as the favorable conditions decrease. If the conditions continue unfavorable, a point is reached where the death rate exceeds the birth rate, and, unless more favorable environment is encountered, extinction is the inevitable result.

The natural processes of senile decay and death apply to the low, minute organism as well as to the more highly developed larger ones.

Hence it follows that, within certain limits, we will have a natural disinfection, provided we wait long enough and the environment in which the organisms exist is unfavorable to their birth rate.

Artificial disinfection, or *disinfection*, as we call it, is the term applied to those processes which we use to increase the death rate of organisms, in order to exterminate the species in a shorter time than the natural processes will require.

It should be remembered that whatever may be the death rate under any given conditions, it will require a proportionately longer time to kill the last few organisms. For instance, if there be 100 organisms present, and the death rate be 75 per cent per minute, at the end of one minute there will be 25 organisms left; at the end of two minutes, approximately 7; at the end of three minutes, approximately 2; at the end of four minutes, less than one. From a strictly mathematical point of view, absolute sterility will never be reached; but practically at the end of four minutes, the organisms being reduced to less than one, and a fraction of an organism being unable to germinate, we have reached a point which we call disinfection. This is the point the sanitarian is always striving for.

The questions which confront the sanitarian are: When shall disinfection be done? What disinfectant shall be used? and How shall it be applied?

As regards the time when disinfection is to be done, we may consider two general periods, viz., during the disease, and after the case is terminated, by recovery, death, or removal to other quarters.

Use of disinfectants during the course of disease. All agree that disinfectants can be used with the greatest effect at the bedside of the patient. If done properly, the necessity for terminal disinfection

is lessened or perhaps removed. The patient is the source of infection, though in certain infectious diseases not an available source unless the proper vectors be present. In most of the infectious diseases, however, he is continually giving off virulent organisms in his secretions and excretions. These should be disinfected by proper means as soon as possible after being discharged; also all linen, bedding, dishes, and other utensils which necessarily come in contact with the patient. In some diseases it is not necessary to disinfect all discharges, though in case of doubt the errors should be made on the side of safety. In typhoid fever the feces and urine are highly infectious, but sputum, vomitus, and sweat may contain the bacilli, and should also be treated. In such diseases as diphtheria the greater portion of the infection is given off in the secretions of the nose and throat, rarely of the ear, and in the expired air as droplet infection. These discharges should be received on cheap fabrics that can be used once and then destroyed. The bath water used in all cases of infectious disease should be disinfected. Perhaps it is going too far to insist on the disinfection of all discharges of patients suffering from infectious disease, regardless of what the disease may be, though such a course would be preferable to treating one class of excretion and leaving untreated others which might spread the infection.

The necessity of disinfecting bed linen, towels, dishes, and other utensils is apparent to all. The patient being surrounded by infection, cannot avoid transferring it, in some degree, to everything he touches or handles.

To be efficient, this disinfection must be done at the bedside, or at least in the sick-room. Picture, if you can, the patient, the source of infection, as being in the outlet tube of a funnel and the infection spreading through the flaring bell. If you meet it at the beginning of the flare you can effectively stop it; if you let it go a little farther, the area over which it has spread increases rapidly until finally it is so widespread that it is practically beyond control, and, were it not for the natural disinfection already referred to, the results might be appalling.

It should be stated that the proper use of disinfectants in the sick-room is more easily described than carried out. If a trained nurse be in attendance it is comparatively easy. If a member of the family attend the patient, which is necessary in the majority of cases, a person who has a reasonable amount of intelligence and common sense, and is able to understand instructions, is desirable.

The selection of an attendant or the adoption of prophylactic measures, especially in children's diseases, can be influenced by appealing to parental responsibility. Many parents, if advised as to certain measures for their own protection, scoff at the idea, saying that they are taking the risk. By putting the same idea forward as for the protection of their children, they at once consider it seriously.

Regarding the disinfectant to be used at the bedside, each man will have his favorite, which may or may not be efficient. No one agent is ideal, nor can any one be applied in all cases.

My preference is heat in its various forms. It is always available, efficient, and can be applied with reasonable good effect by persons incompetent to use other agents.

For sputum, nasal or other discharges (which should be received on cheap cloths), incineration is the quickest and easiest method of disinfection. Solutions containing 5 per cent phenol, 1 per cent tricresol, compound cresol solution, or other disinfectant coal-tar products are also efficient. A word of caution about the latter class may be appropriate here. Since the testing of liquid disinfectants by comparison with a standard has come into practice, it has been found that some of the alleged disinfectants have little or no disinfectant powers; others run far above the standard. Some run constantly at about the same coefficient; others vary within quite wide limits. Do not use a substance that is claimed to be a disinfectant unless you have more than the claims of the producers to prove its worth.

For feces and urine, when other agents are not obtainable, a bucket of boiling water (about 1 gallon) added to a stool, which is then covered and allowed to stand till cool, will destroy practically all bacteria, except the spore bearers.

A modified method of using heat, described by Prausnitz¹ at the Fifteenth International Congress of Hygiene and Demography, has been tried and confirmed by Linenthal and Jones² of Boston. It consists of the addition of a small amount of water, preferably hot, to the stool; then fresh quicklime is added. The process of slaking raises, and maintains, the temperature well above the thermal death point of the typhoid bacillus for some time. Milk of lime is also an excellent disinfectant for feces and urine. The solutions already named for sputum are also effective for dejecta, but care must be taken that fecal masses are broken up to allow contact of the disinfectant with the organisms. The penetrating powers of heat will reach the interior of these masses, while the solutions may not.

Bath water used on a patient, though frequently neglected, is easy to disinfect. Heating it is very efficient. The addition of a disinfectant, such as crude carbolic acid, or other similar product, readily destroys pathogenic organisms.

For the disinfection of soiled bedding and clothing the ideal treatment is removal to a steam disinfecting chamber; but in rural communities this is not always possible. Immersion in boiling water for five minutes, 5 per cent carbolic acid, or other disinfectant solution for two hours is efficient. Mattresses can be disinfected by steam under pressure, but otherwise they are hard to disinfect except by burning.

In the past, much disinfection which should have been done at the bedside has been neglected, in the belief that the germs would all be killed at one time by a terminal disinfection; but before time for terminal disinfection arrives the infection has already spread to others.

Concerning terminal disinfection, there is some difference of opinion among health authorities. All agree that when any unusual or rare infectious disease, which has not obtained a foothold in the community or country, threatens, every possible opportunity of destroying even a small amount of infection should be embraced. No one claims that any measures which may kill a single cholera vibrio should be omitted in the case of a threatened importation of cholera. The same holds true for *fumigation* to kill mosquitoes or rats, when yellow fever or plague threaten.

With reference to terminal disinfection after our more common infectious diseases, such as diphtheria, scarlet fever, and tuberculosis, some authorities have taken the position that terminal disinfection is unnecessary. Their claim is based upon the theory that the environment of the bacteria in the sick-room at the termination of a case is such that an increase of the organism, except by addition from the one source, the patient, has been impossible; while the decrease, brought about by the processes of nature, has been sufficient to make the few remaining organisms negligible.

Since 1905 terminal disinfection after diphtheria and scarlet fever has been abandoned in Providence, R. I., and reports show that the prevalence of this disease has been no greater than in cities which have done terminal disinfection. In 1912 the New York City Health Department abandoned terminal disinfection after diphtheria, except that bedding and like goods were removed to steam disinfecting plants. This rule, however, did not apply to cases which died of the disease, or were terminated by removal to hospital or other quarters; in these cases terminal disinfection is done. At a later date the removal of bedding, etc., was discontinued. Likewise, terminal disinfection after measles, German measles, and whooping-cough was abandoned; also after poliomyelitis or cerebro-spinal meningitis, except after fatal or removed cases.

The results obtained in these cities have raised the question in the minds of health officials whether or not disinfection, as ordinarily practiced, is efficient. It would appear that the disinfection, when done, did not disinfect, or that the forces of nature have accomplished disinfection during the time that is necessary for the patient to recover. Possibly, and in some cases very probably, both of these conditions have been true. The organisms may have been killed by the effects of drying or light, and the disinfection done in a routine manner by some faithful and well-meaning employee of the Health Department, who had not the technical knowledge necessary to ap-

preciate the ever varying conditions under which disinfection must be done. He has learned to use a certain amount of disinfectant for a given space, and he carries out this procedure faithfully, firmly believing that he is doing efficient work. He does not consider the factors of temperature, humidity, outside winds, porosity of walls, or rate of application of the disinfectant.

There is one factor that may have a bearing on the apparently favorable results obtained since abandoning terminal disinfection after certain diseases in Providence and New York, that is the mechanical cleansing of the room. Chapin⁷ states that he "hoped the abandonment of official disinfection would cause people to do more cleansing for themselves, but there has thus far been little improvement." He does not state that cleaning, even though superficial, and not as thorough as the sanitarian would desire, has been wholly neglected. The handbook of the Bureau of Infectious Diseases of the New York City Department of Health states that "in diphtheria and measles, when patient recovers, the sick-room is thoroughly cleaned and aired."

I believe that cleansing is an efficient disinfection, when properly carried out. You are all familiar with the part played by sedimentation in the purification of streams. The same factor is present in the case of the air of a sick-room. The law of gravity is always in effect; when the air is quiet, there is a constant tendency for dust or droplets to settle. As a result, the ceiling of the room will receive little, if any, infection. Any ledge or molding near the ceiling will receive some, but the amount found at different levels should steadily increase as the floor is approached, where the greatest amount will be found.

Thus we see that the place where disinfection is needed is that portion of the room which is easily reached with cleansing agents. The floors and woodwork are scrubbed, with particular attention to the ledges above door and window casements. In the present day a vacuum cleaner may be applied to the walls and ceiling generally. I believe the results after a thorough mechanical cleansing will compare favorably with those after gaseous disinfections.

Another factor, of interest in the case of diphtheria, is the possible absence of susceptible material. As a rule, all susceptible persons in the house or apartment are exposed before the first case is isolated, and the isolation room is used for all cases before any terminal disinfection is attempted. Now that we have, in the Schick test, a reliable test for susceptibility to diphtheria, it will be interesting to note how many susceptible people escape infection if they occupy quarters vacated by a case of diphtheria after which no disinfecting procedure has been applied, provided, of course, they do not receive antitoxin.

The important factor in determining after what diseases terminal disinfection is to be done is the length of time the organism of the

disease in question can resist the action of natural agents, of which drying and the effects of light are the most important.

Take up any standard work or text-book on bacteriology, go through it, and see how many agree on the length of time an organism, say, the diphtheria or tubercle bacillus, can exist under these circumstances. I dare say you will find that no three agree. Compare the statements of the same authorities concerning the time that these organisms will resist a certain degree of heat, and see how much more closely they agree. The explanation is simple. A fixed degree of heat for a certain length of time places all tests on a uniform basis and the results show accordingly. But when a drying test is recorded it is simply stated as drying "in diffused light," "in direct sunlight," "on paper," or "on fabric." No mention is made of the atmospheric temperature or humidity, the amount of light present, or the rate of drying.

That drying *per se* is not always fatal to an organism is shown by the experiments of Van Sterenberghe,⁴ who rapidly dried the virus of rabies *in vacuo* and obtained a perfectly dry product which was virulent. A similar process has been used by Harris,⁵ of St. Louis, except that he keeps the temperature low. Slow drying of the virus renders it noninfectious at the end of nine to fourteen days. If, therefore, one organism can be dried under certain conditions without being killed, is it not possible that others may act in the same way?

Though the apparently good results obtained since the abandonment of terminal disinfection after certain diseases properly stimulate us to search for more light on this subject, I believe the data at present on hand do not warrant the assumption that terminal disinfection is useless. I think that a majority of the health authorities of the country are not ready to discard such measures until more certain data have been obtained.

Dreyfus,⁶ in advocating a standard procedure for terminal disinfection, says: "There is no doubt that the lack of uniform methods of application under fixed conditions is responsible in a very great measure for the discredit into which disinfection has fallen with a large percentage of professional men."

Rosenau⁷ says: "If terminal disinfection prevents the occurrence of only a small number of cases, it would still seem to be worth while. So long as we possess such a reasonably efficient and satisfactory substance as formaldehyde, terminal disinfection should be practiced after all diseases in which environment may become infected, even though the danger be slight."

Until the time required for natural disinfection to be accomplished has been determined, under conditions comparable with those under which the infection may exist in the sick-room, I believe it is safer to continue the use of cleansing and disinfecting procedures. The formulation of a standard procedure, to be used under standard conditions, will be a step in the right direction.

If, then, as a rule, terminal disinfection is to be practiced, there next comes the question, How shall it be accomplished? As already stated, I have a high regard for a good, thorough, mechanical cleansing. If the walls are carefully brushed with the suction brush of a vacuum cleaner, the floors and woodwork thoroughly scrubbed with hot water and soap, or, if preferred, with a disinfectant solution, a reasonable disinfection will have been accomplished. This process can be applied in any sick-room, in any dwelling, while the gaseous disinfectants, particularly in some of the log cabins or other crude buildings of the poorer classes in the warmer climates, have their value reduced by our inability to make the apartment tight. Of course, in rural districts, only hand operated vacuum cleaners are practicable, and in all cases the dust thus collected should be burned.

In connection with cleaning, renovation should be mentioned. After cleaning, a fresh coat of paint or varnish on the woodwork and floor, a renewal of the wall paper or, if the walls are bare, a fresh coat of whitewash or kalsomine, all add their quota to the safety of the apartment.

In combating disease which is carried by animal hosts, fumigation with sulphur dioxide is the method of choice. The best results will be obtained by fumigating all rooms of the structure simultaneously. Five pounds of sulphur per thousand cubic feet is sufficient, and it should be placed in a thin layer so that it will burn rapidly. If fumigating only to destroy vermin, moisture is not necessary. Exposure of four to twelve hours is desirable. Hydrocyanic acid gas may be used for this purpose, but it is much more dangerous to man; unless the process is in charge of a man with technical training and you have complete control of the house or vessel, its use should not be allowed.

Coming now to the disinfection process as applied in terminal disinfection against the great class of noninsect-borne communicable diseases, the chief question is, What is the best disinfectant? The ideal disinfectant is unknown and, I dare say, never will be known. Probably all of you have been interviewed many times by persons who have tried to make you believe that the ideal disinfectant has been found.

The person who is to apply the disinfectant is a most important consideration. Rosenau⁷ very properly states: "It requires time, money, and expenditure of well directed and intelligent energy to accomplish satisfactory disinfection." While ability to carry out orders is a desirable qualification for a disinfecter, a certain amount of intelligence and common sense to use, as needed, is essential.

For many years formaldehyde gas has been rated as our foremost gaseous disinfectant, and I think I am safe in saying that it still holds its place. I do not believe that there is any scientist who will deny its germicidal effect, when applied under proper conditions. I

have had occasion to test its germicidal powers in a closed glass chamber, and, while not as rapid as steam or hot water, it does disinfect within a short time. Disinfection by formaldehyde does not, however, mean merely the making of a disagreeable odor. It must be used in a temperature of 65° F., or higher, and with a relative humidity of 65 per cent at the beginning of the process. It is useless to put formaldehyde gas in a room where the temperature is so low that polymerization can take place.

In practical work a sling psychrometer is sufficient apparatus to determine favorable conditions. If the above temperature and humidity are not present, they should be obtained or some other disinfecting process should be resorted to. Humidity is easily raised by boiling water in the room, and this will also usually raise the temperature to the desired degree. Other factors to be considered are the prevailing wind, porosity of walls, and ability to keep the gas confined to the apartment to be disinfected.

Now as to the best method of liberating formaldehyde gas. There have been many devices invented for the production of formaldehyde or its liberation from its solution. The tendency has been to simplify the procedure and increase the rate of liberation of gas. By liberating the gas rapidly a better effect is obtained, as the leakage is proportionately less.

A comparative study of the methods of evolving formaldehyde gas was made by my late brother officer, Passed Assistant Surgeon T. B. McClintic, who found that the greatest amount of formaldehyde was obtained from the retort or autoclave apparatus, but that the formalin-permanganate method gave nearly as large a yield with much more rapid evolution and, as a whole, better results. This method also raises the humidity of the room as the reaction proceeds.

Briefly, the procedure is as follows: Ten ounces of formalin and 5 ounces of potassium permanganate are sufficient for 1,000 cubic feet of space. A large receptacle should be used, to avoid spattering, and this should be placed upon a noncombustible surface. If there be not sufficient moisture present, there is some danger of the dry gas igniting. Several receptacles in different parts of the room are more effective than one large container. The permanganate is placed in the container and the formalin poured over it. The reaction is shown by ebullition of the fluid, slight or marked according to its temperature. When once started, it continues until all available formaldehyde has been liberated.

In New York City, this method is modified by using 75 grams of permanganate in 90 cc. of water—hot, if possible—then 30 grams of paraformaldehyde are added. This is sufficient for 1,000 cubic feet. This method makes less weight to carry around, as the water is obtained at the place where disinfection is to be done. The paraformaldehyde is more stable than formaldehyde solution, the latter

seldom containing the required 40 per cent. At present the price of permanganate makes the cost of this method rather high. Whether we shall find a substitute as efficient as permanganate has not yet been fully determined. The formalin-aluminium-sulphate-lime method does not give as much gas as the permanganate method.

Dixon⁹ reports favorable results by substituting sodium dichromate and sulphuric acid for potassium permanganate. The acid and formaldehyde solution are mixed and allowed to cool. This solution is then poured over the crystals of sodium dichromate, spread in a thin layer in a large container. The proportions are:

Sodium dichromate-----	10 oz.
Saturated solution formaldehyde gas-----	1 pint.
Sulphuric acid, commercial-----	1.5 oz.

I have not had an opportunity to test this method, but it seems to be based upon sound principles.

A suitable control test should be employed to determine the efficiency of the disinfection. A simple and efficient test is made by the Wilson method: A small folder of pasteboard in which there is pasted a strip of filter paper is prepared and sterilized. The filter paper is touched with a drop of broth culture of *B. prodigiosus*, or other harmless organism, and, after drying, is exposed in the room to be disinfected, not too close to the source of the gas. When the room is opened, the filter paper is removed from the folder with sterile forceps and planted in broth, and then incubated for twenty-four hours. If a chromogenic organism, such as *prodigiosus*, is used, the color tells whether the growth is due to unskilled test organisms or to accidental contamination. The use of such control tests is a check on efficiency, and the disinfecter learns to be more thorough and constantly strives to improve his results.

There is one method being put forward at present by the manufacturers of the high coefficient disinfectants, viz., the general spraying of all surfaces of a room with a solution or emulsion of a particular disinfectant. Most of these preparations are of an oily nature, and many have a disagreeable odor. If you spray the walls of a papered room with them, the oily stains left necessitates renewal of the wall-paper; if the room be kalsomined, the walls must be rekalsonined. If the odor that remains is disagreeable, you may attempt to mask it with something more agreeable.

I have not dwelt to any extent on the use of physical agents as disinfectants, as there is little to discuss concerning heat, our best physical disinfectant. We are all agreed that, when it can be applied, it is most rapid and efficient. We regret that it cannot be used under all circumstances.

At present the market price of disinfectants is decidedly fluctuating. The European war has caused a general advance in prices, in

part because of the scarcity of certain products that have heretofore been imported and in part by the lessening of competition among producers. It is, therefore, useless to expect to accomplish disinfection by chemical substances as economically as was possible one year ago. The cost of heat, however, has not advanced proportionately, and consequently, from an economic viewpoint, should be employed on a wider scale.

Briefly summarized, the points I wish to emphasize are:

1. Disinfecting procedures, properly applied, have an important part in the prevention of communicable diseases.

2. Their efficiency decreases as the distance between the place of origin of the infection, the patient, and the point of their application is increased.

3. Natural disinfection, or the destruction of infection by processes of nature, increases in efficiency in direct proportion to the length of time and the degree to which the processes (drying, sunlight, etc.) are allowed to act.

4. The point where natural disinfection becomes sufficiently complete to warrant the discontinuance of terminal disinfection should be determined under more exact conditions than have obtained in the past.

5. The choice of disinfectants must be made with due consideration of conditions, always bearing in mind that a good mechanical cleansing is one of our efficient means of disinfection. For gaseous disinfection, formaldehyde, evolved by the formalin-permanganate method under proper conditions of temperature and moisture, is our simplest and most efficient method.

6. Control tests should be used to check the efficiency of the disinfection.

7. Though the results obtained in some places since abandoning terminal disinfection after certain diseases seem to show that heretofore much useless disinfection has been done, I do not feel that the evidence thus far adduced fully justifies its discontinuance.

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THE PRIVY PROBLEM.

DR. L. L. LUMSDEN, U. S. P. H. S.

We had at the Conference last night a discussion of this important subject, or rather of a subject which involves this, viz., "Excreta Disposal." One thing emphasized in the course of that discussion was what I think is a very important point, that the privy problem is very distinctly a part of the excreta disposal problem. I think that all of us who have been engaged in the study of rural sanitation have viewed this problem too much from the standpoint of the privy and not enough from the standpoint of excreta disposal.

I am not going to enter into much of a discussion of this subject this afternoon, because we thrashed it out pretty thoroughly last night and adopted some resolutions. These resolutions were adopted unanimously. I look upon that action of the Conference last night as one of the most significant and far-reaching steps taken looking toward the solution of this vastly important problem.

It is needless to go into detail as to the importance of this phase of rural sanitation. We all know that no animals can live if they are more or less continually contaminated with their own excretions, the danger increasing directly as the degree of contamination. We know that in this great country of ours, called, somewhat boastfully, perhaps, one of the most progressive countries in the world, throughout our rural districts sanitary conditions, particularly in respect to the disposal of human excreta, are woefully bad. We know that thousands and thousands of our people are being killed every year because of diseases arising from these conditions. We know that in our large centers of population the installation of sewer systems to carry away this potentially dangerous matter has had a most wholesome effect in reducing morbidity and mortality rates among human beings. We know that the cleanly and decent disposal of human filth is one of the most important single measures in the whole range of hygiene, disease prevention, or health conservation. We believe that the problem of getting the great liberty-loving American people to apply themselves intelligently to this question is a matter of education; and to proceed successfully and to get improvements in this work carried out in our rural districts will require all of the agencies which have been employed in trying to advance education along other lines.

I have here a bulletin which has just been issued by the Public Health Service, Public Health Bulletin No. 68. It is entitled "Safe Disposal of Human Excreta in Unsewered Homes," by Lumsden, Stiles, and Freeman. You can obtain copies by applying to the Surgeon General. In preparing this bulletin we left out everything upon which we could not readily agree. It represents the views of three men who have had some little experience in the study of this

problem, and it was considered from the standpoint of the zoölogist, the bacteriologist, and the epidemiologist. I think it is very important to consider the problem from all three of these aspects. In this bulletin the privy is defined as follows: "A privy is a device for furnishing privacy to persons while voiding their excretions. A sanitary privy is a labor-saving device for convenient and comfortable use in the safe and cleanly disposal of human excreta."

We have tried to emphasize throughout this bulletin the importance of an understanding of the principles of excreta disposal, rather than the details of privy construction. I was much interested in the statement of one of our field men the other day, upon his return from a trip. A farmer said to him: "I learned from the public lecture that typhoid, hookworm disease, and other diseases resulted from the use of dirty privies, so I went home and tore mine down." That, of course, was a misinterpretation of what we are trying to say.

When we come to discuss the best type of privy for construction, I think that all of us can agree that there is no privy which is entirely satisfactory. There is no privy which is so satisfactory as a sanitary water-closet connected with a sanitary sewerage system. We have no privy which can be operated with safety without the exercise of some labor and some intelligence. I think we might as well be frank about that, and let the people in general know it. They must understand the dangers to which they are exposed by existing conditions, and then make up their minds whether they wish to take out this form of insurance against disease, death, and disaster for themselves and their families, by installing, and using properly, sanitary privies.

I am going to read, in conclusion, the resolutions which were adopted at the Conference last night. Most of you were present, but some were not, so I will read them for the benefit of those who were not there. These resolutions cover the ideas upon which we were able to agree, with very gratifying unanimity, last night. I still am firmly convinced that this is about where we stand on this important proposition:

RESOLUTIONS ADOPTED BY THE THIRTEENTH ANNUAL CONFERENCE OF STATE AND TERRITORIAL HEALTH OFFICERS WITH THE UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C., MAY 13, 1915.

Whereas much preventable disease in the United States results from insanitary disposal of human excreta in our rural districts: Therefore, be it

Resolved. (1) That the promotion of improved methods of disposal of human excreta at unsewered homes is one of the most important duties of municipal, county, State, and National health officials.

(2) That the only disposal methods to be recommended are those which prevent the conveyance—by water, foods, fingers, flies, or other agencies—of human excreta to human mouths.

(3) That human excreta not previously treated so as to be rendered free from all living pathogenic agents likely to be contained in such matter should not be deposited in the ground at any place near, and certainly not less than 200 feet from, any source of water supply used by persons for drinking or culinary purposes or for washing foods or food containers.

(4) That the places used for the disposal of human excreta in the ground should, wherever practicable, be downhill, and never uphill, from dwellings and from sources of water supply.

(5) That at every place of human abode, and also at schools and churches, either sanitary water-closets or sanitary privies should be provided, and these should be used in a cleanly manner.

(6) That in advocating privies for use in the disposal of human excreta, not only proper construction, but also proper upkeep and proper use of the same, and proper disposal of contents should be urged.

(7) That in general the only types of privy to be recommended as sanitary are those provided with water-tight receptacles to receive the excreta, and so constructed that flies cannot have access to the excreta.

(8) That the construction and use of privies such as fly-proof surface privies, unscreened receptacle privies, and the so-called "pit privies," which may be improvements over existing privies in certain localities, but which can be made to serve the purpose of sanitary privies only under certain conditions of location, season, and soil formation, should be suggested only as compromises and with a full presentation of their attendant dangers.

(9) That the so-called "pit privies" are especially unsuited for use in sections having limestone or marshy soil formation.

(10) That in recommending an installation or a modification of privies, the principles of sanitary disposal of human excreta should be emphasized.

I think the last conclusion is probably the most important one, that the principles should be emphasized. If the people of this great country of ours only understood the principles involved and the importance of this matter, I have no doubt that we would see remarkable improvement in the sanitary conditions of our rural districts in the coming years—in the immediately coming years. I believe we may look forward to definite improvement in our rural districts if we who are here this afternoon will continue hammering intelligently and persistently upon this important problem. The intelligence of our rural people will be attracted to it, and once that intelligence is attracted, something will be done. I believe that in the next ten or twenty years we shall see marked improvements in our rural sanitary conditions. I believe we have reason to look forward to as definite a reduction in the diseases which come from the insanitary disposition of human excreta in the rural districts as we have accomplished in our large cities in the last twenty years. I believe we must proceed along these common-sense lines. I believe it is just as feasible to get the average farmer, the average dweller in the rural districts, to apply his common sense to this problem as to apply his common sense and intelligence to other problems, such as the improvement of

the soil, improvement of transportation facilities, etc. They are applying themselves to these other lines of progress, and I believe there is no reason to think that they will not apply themselves to this important problem of keeping alive and keeping well.

The resolutions read by Dr. Lumsden were presented to the Conference, and upon motion were referred to the Committee on Resolutions.

POSTAL AID TO STATE HEALTH WORK.

DR. JOHN S. FULTON.

About ten years ago this Conference appointed a committee to wait upon the Postmaster General and see if some arrangement could not be made whereby incoming mail might be handled in the same way as outgoing mail is handled in many places. Patent medicine people, distillers, and mail-order houses are able to inclose and seal advertising matter, run the inclosures through a machine that imprints an inscription saying that postage has been prepaid at such and such a place, and transmit tons of such matter through the mails without stamps affixed or imprinted. That must be a very economical way of handling mail.

In the city of Baltimore, for twenty years, it has been the custom of the Health Department to send out self-addressed envelopes, un-stamped and to keep a deposit of cash at the Baltimore post-office for the payment of due postage on such matter as came in these self-addressed unstamped envelopes. Here we had a small local example of the prepayment of postage on incoming mail, quite analogous to the "permit" method of prepaying outgoing mail, and some of us public health officials were much concerned about the serious extravagance of supplying stamped self-addressed envelopes to our regular official correspondents. It did seem feasible to prepay by means of a deposit in our central post-office. But we failed entirely to interest the postal authorities in this suggestion. We were assured that it could not be done without new legislation.

I remember very well my interview with the Second Assistant Postmaster General at that time. He said that it was absolutely impossible to do such a thing. I told him that it could not be impossible, because it had been done for several years in Baltimore. He said that the Baltimore postmaster was acting in violation of the law. The practice is still going on, however, and I can see no adequate reason why it should not be extended to the whole State. At that time we did not have as many as one hundred official correspondents in the State. Now the number has increased to several hundred. Practically all of them know that if they affix a two-cent stamp the matter will go first class, and the postage will be collected at the

other end. I am sure that Uncle Sam has not counted the cost of collecting postage dues. All this part-paid mail has to be weighed, one piece at a time, and stamps have to be affixed to each piece of mail. The mail carrier pays all these dues out of his own pocket. It has all to be entered in the mail-carrier's book, and the carrier has to collect, or, failing to collect, the carrier stands the loss.

What we wish to do is not so much to escape the excessive cost of paying postage due as to extend our correspondence in such a way that it can all be paid under a printed permit on the corner of the envelope, to the effect that the Baltimore post-office holds our deposit of sufficient cash to pay for all such mail.

The Conference made that trial some ten years ago, under a Republican administration. I should like to try it once more, under a Democratic administration. I suspect that if I show him a month's postage-due stamps the Postmaster General will be convinced that it costs a good deal of money to handle this part of our incoming mail. I bring up this matter with a good deal of diffidence, as I brought it up last year, and if any one, at that time, had the same difficulty, no one mentioned it. It seems to me very likely that other State Health Departments are involved in similar embarrassment.

DISCUSSIONS.

DR. A. E. FRANTZ, Delaware: I am very much interested in the question of the extension of postal aid to State Boards of Health. I think that if there is any one way in which these great United States could help along the good work of health preservation, conservation, etc., it would be through the franking privilege given to State Boards of Health. There is no element of justice in charging State Boards of Health for the distribution of health educational matter to the people of the United States.

In Delaware we require a postal-card report, with a penalty of between \$5 and \$25, within twenty-four hours of the birth of a child. That costs 1 cent. Of course, the birth certificate comes in later. That costs 2 cents, making 3 cents. When a marriage is performed, the State Board of Health requires a postal-card report within twenty-four hours after the license is issued, and then twenty-four hours after the ceremony is performed the minister must report.

I believe that in Delaware we get 100 per cent of all the births, except those that are illegitimate and hidden entirely. We have improved the service, but it costs us money. We give this money to the United States Government, and the same thing occurs

with our morbidity reports. The Postal Department of the United States should give to boards of health the franking privilege for all matters concerned with health. As long as I am a member of a State Board of Health in this Conference I shall fight for free postage.

DR. B. FRANKLIN ROYER, Pennsylvania: Several years ago the Federal Census Office was considering the collection of morbidity reports as a new feature of census work. At that time an arrangement could have been made by any State having a fairly large number of morbidity reports to have franked forms made up for use to go from the physician to the local health authority, thence to the State Department, with the further franking privilege of sending those forms to the United States Government Federal Census Office in Washington. An arrangement of this sort might have been made at that time by which the preliminary postage expense of reporting contagious disease could have been avoided.

In Pennsylvania we have more than 5,000 regular correspondents, at least 3,000 or 4,000 of whom could take advantage of the privilege of mailing reports and other communications to the Department with the postage charged collect as has been suggested. Would it not be a good plan to appoint a committee, with Dr. Fulton as chairman, with instructions to reformulate the question for submitting to the Postmaster General in a way that will carry even greater force than has previously been given to it, and would it not be well to have the question submitted to all State Health Departments and City Health Departments to find out how many would join in such a request? If a considerable number of States and cities would join in such a request, perhaps the Postmaster General would yield and shift the cancellation of stamps from the local post-offices to a collection of postage where the particular health department has its headquarters.

Dr. Hasseltine said something in his paper about the disinfectants now in use in the State of Pennsylvania. We have been using sodium dichromate instead of potassium permanganate. The first formula published in the Commissioner's paper in the *Journal of the American Medical Association* was, as quoted by Dr. Hasseltine, sodium dichromate 10 oz. avoirdupois, saturated

solution of formaldehyde gas (37%), 1 pint commercial sulphuric acid $1\frac{1}{2}$ fluid oz., using these quantities for 1,000 feet of space. We have found, however, that in shipping and handling these ingredients in cold weather it would be necessary to add to the sulphuric acid and formaldehyde solution glycerine to the amount of $1\frac{1}{2}$ oz. I thought this slight change in the formula would be of interest in this Conference.

I make a motion that a committee be appointed, with Dr. Fulton as chairman, to confer with the Postmaster General as to making arrangements for postage to be paid at the office where the mail is to be delivered.

DR. W. S. RANKIN, North Carolina: Dr. Fulton's suggestion of paying postage at the incoming office would be of tremendous assistance and saving in vital statistics work. That is where we need it more than anywhere else. When you come to consider that the birth and death rates gathered by the States are of equal interest to the Federal Government, I think we have a good strong argument to use with the Postmaster General. I think the motion is a good one, and I wish to second it.

There is a gentleman now in the United States Congress, Mr. Britt, who was Third Assistant Postmaster General. He comes from Asheville, N. C. I have heard him given a good deal of credit for the parcels post. I think it would be advisable for the Conference to have a man like Mr. Britt, who understands the whole postal system, and is also interested in public health, to make an address on this subject, and give us some ideas as to how the Post-office Department and the States can work together.

DR. LINSLY R. WILLIAMS, New York: I cannot see why the health departments should get the franking privilege any more than the agricultural departments or other departments. I think it is distinctly a State problem, and if vital statistics are worth anything to the State, the State should pay for them. I think we should take up with our legislators the matter of paying physicians for reporting. We passed a law through our Legislature last year to pay physicians, and had no trouble at all. I am unalterably opposed to the franking privilege. It has gotten to be such a colossal abuse that the idea of extending it in any way is abhorrent to me.

DR. ROYER: The gentleman is entirely off the question. We are not asking for the franking privilege at all, but that the postage may be paid at the incoming office.

DR. WILLIAMS: I am sorry if I misunderstood the question, but still I cannot quite see the necessity. But perhaps we are fortunate, for in our State the registrar gets 20 cents for each certificate he sends in.

The motion to appoint a committee, with Dr. Fulton as chairman, to confer with the Postmaster General as to arrangements for paying postage on mail at the incoming office, was put to vote and carried. Dr. A. E. Frantz was named as another member of the committee.

DR. J. N. HURTY, Indiana: I believe there is much virtue in having district health officers. All health officers should be all-time officers, and I do not think that public health work in any of our States will make much further advancement until health officers become all-time officers and professional.

We heard Dr. Rosenau this morning. His doctrine is sound. We must have men trained according to some plan, and they must give their whole time and attention to public health work. They must be experts in it. The general practitioner of medicine is not an expert in preventive medicine. Indeed, he might be called upon to do conflicting things.

So far as the State of Indiana is concerned, after studying this matter we decided that we did not want district all-time health officers, but that we did want county all-time men. Our reasons were that the county is a legal division of the State, and has its separate officers, its separate powers of taxation, and to add to each county an all-time health officer seemed to be logical. It is true that our bill failed, and it failed through the opposition of the physician health officers, the physicians who are receiving anywhere from \$300 to \$1,200 or \$1,500 a year. They were almost united in their opposition to the bill. We have learned now where the real opposition to further health work in Indiana lies. It lies with the physician health officer. That influence must be overcome if the work is to go on.

I believe in the county all-time health officer, and do not see for Indiana any advantages in full-time district officers.

SYMPOSIUM: THE WHOLE-TIME HEALTH OFFICER.

QUALIFICATIONS ESSENTIAL FOR THE FULL-TIME HEALTH OFFICER OF THE COUNTY OR DISTRICT.

JOHN A. FERRELL, M.D.

The success or failure of one of the greatest constructive movements of modern times is in the hands of the public health officers. To the extent that they prove able in their work, alert, resourceful, and possessed of the confidence of the community, the public health movement will make progress.

I. NATIVE QUALIFICATIONS.

Whether it be true that health officers, like poets, are born, not made, clearly there are certain fundamental human qualifications without which no health officer can be successful. Unless he is potentially endowed with honesty, courage, energy, a constructive imagination, sound judgment, initiative, tact, patience, and self-control; unless he has a forceful personality and the ability to meet, understand, and value his fellow-men, regardless of their station in life, and give to them freely of his capacity for leadership; unless he has somewhere within him the possibilities of these things in some degree, all the knowledge and training in the world will not make him a good health officer. This is only another way of saying that the successful health officer must be an exceptional man of large caliber.

Fortunately, some of the fundamental qualifications just mentioned may be acquired, or at least developed. It is, therefore, not necessary to eliminate a man from consideration for a given position because he does not appear to possess in the beginning all the essential character qualifications. When a man otherwise well qualified as a health officer is lacking in some one of these essentials, we should ask ourselves whether the deficiency is one that is likely to be remedied by proper training and experience.

II. ACQUIRED QUALIFICATIONS.

But character qualifications are not enough; the health officer of today must have *knowledge* and *training*; he must have both general and special knowledge, and he must have general and special training. This is the day of educated men, and trained men, and the health officer cannot afford to be anywhere but in the forefront of progress.

(a) **General Education.**—The American institutions leading in medical education have come to a definite realization of the importance of a liberal academic education for those who study medicine.

Of the 101 *bona fide* medical colleges in the United States, 84 now require from one to four years of college education before admission to the medical course. If it is important for medical practitioners to have a broad general training, it is still more important that the full-time health officer shall be so equipped. His is a definite public service requiring the broad outlook that general education is expected to give. He deals with the group, rather than with the individual; he has to meet all kinds of men; he is called upon to a greater extent even than the practicing physician to show a broad understanding of human nature. Clearly the health officer must consider as a minimum requirement the educational qualifications prescribed by standard medical colleges.

(b) **Special Training.**—Granted that a man has the essential inherent qualities and the general academic and business training necessary to qualify him as an effective health officer, it remains to be considered what special training he needs to have. Before this can be stated, one must know the kinds of service the health officer is going to be called on to perform. The problem is similar in this respect to medicine. Certain standards of medical knowledge are laid down for all men who are permitted to call themselves physicians. These standards are presumed to qualify a man for the general practice of medicine. The great majority of physicians do not undertake specialized work and do not seek special training subsequent to graduation. A few who become superintendents of hospitals and heads of medical organizations have to qualify themselves for administrative work; others may specialize in diseases of the eye, or of the intestinal tract; or they may become surgeons, for example, which means that after acquiring the essentials for the general practice of medicine the physician can pursue special branches of medicine and become especially qualified in a particular branch.

Similarly in public health work: A successful health officer must be grounded in the essential elements that make up his profession. Although he is not expected to be an expert in epidemiology, quarantine, sanitary engineering, housing, foods, and the other subjects with which the health officer must deal, he should know the basic facts concerning each and the relation of one to another. Building on this knowledge, he may become a specialist in administration; or he may become a specialist in bacteriology, sanitary engineering, zoölogy, helminthology, communicable diseases, statistics, etc.

The thoroughness and breadth of the training necessary will of course be determined very largely by the responsibilities carried by the particular position to be filled. Presumably the Surgeon General of the Public Health Service should possess broader and more detailed knowledge than would be expected of a State or city health officer, and these in return require a wider range of knowledge and experience than do the health officers of the counties and towns. The State bacteriologist is likely to be confronted with problems re-

quiring a wider range of knowledge than would be expected of the bacteriologist of the moderate sized town: but regardless of the breadth of the particular or specialized character of knowledge which some health officers may have to have, all should be grounded in the fundamentals. As a basis, the health officer should have the training in his profession comparable to that which the general practitioner must have in medicine, namely, a grounding in the fundamental branches of knowledge that make up the curriculum in medical schools.

Since the discussion here is to be directed primarily to the consideration of the qualifications for the county health officer or the district health officer whose territory is supposed to embrace two or more average counties, we should expect him to possess the essential qualifications for the health officer who would correspond in a way with the general practitioner in medicine, and in addition he should be particularly strong on the administrative side of his work.

This brings us to the question as to what are the branches of knowledge essential for the health officer. The idea so commonly held, that the physician without any special training is qualified as a health officer, should be dispelled. The physician and the health officer must acquire a knowledge of several subjects which are common to both professions, but they are interested in them from different angles. The physician is interested in the sick; the health officer in the well. The work of the physician is to cure the sick; that of the health officer is to prevent sickness. The physician attempts to *cure* disease, the health officer tries to *prevent* disease. The physician is interested in the chemistry of food, to know if, for example, it *caused* poisoning; the health officer is interested to know if it *will* cause poisoning. The doctor is called on to get the poisonous food out of the patient's stomach; the health officer is interested in finding the unfit food and preventing it from ever reaching a person and making him sick. The physician cannot take the initiative; he cannot move until he is sent for, and he is not usually sent for until the damage is done. The health officer *can* take the initiative; he is expected to watch people and to advise with them so that they may not become patients. The healthier his people keep the more distinguished will he become in his profession; whereas the physician cannot distinguish himself unless some of those in his territory unfortunately become patients.

There are several branches of knowledge essential for the physician that are not necessary for the health officer, and a number of branches necessary for the health officer are not essential for the physician. The physician, for example, is not particularly concerned with epidemiology, sewage disposal, hygiene, sanitary science, public health laws and administration; the health officer, on the other hand, is not particularly interested in obstetrics, gynecology, or surgery. The

physician is interested in the individual, by whom he is paid; it is his business to restore the individual to health. The health officer is interested in the individual only as he affects the community; his chief interest is the community; his pay comes from the community; his business is to keep sickness and disease out of the community. He is a wholesaler, free and unrestricted in his operations, dealing in a commodity everybody wants. He is bound to no individual, but is free to do his duty to the community as he sees it. His training does not qualify him to practice medicine, and the medical course does not qualify a man as a health officer.

Such subjects as physiology, chemistry, and biology are essentials in medical practice and also in preventive medicine, but men entering the respective professions are interested in them from different viewpoints. The physician requires them in their relation to the sick and the treatment of sickness; the health officer studies them as they relate to the well and to the prevention of sickness. The instruction in either case will fall short in its purpose unless it be presented by instructors who are interested from the same angle as are the students under them. For a full realization of the purposes of prescribed courses it seems necessary that the school for health officers should have its faculty and the medical school its faculty, both separate and distinct. The medical school has to have the hospital for the clinical teaching and practice of its students; the school for health officers must also have special facilities for giving instruction and practice to its students, so that when they are licensed as health officers they will be actually prepared for the work. The State and city health departments should coöperate with the school for health officers, serving it in much the same way that the hospital serves the medical school. Mr. Wickliffe Rose, in treating of the character of the school that is necessary to provide the training for the health officer, has stated that the school needed for training health officers should be related to a medical school, but that it should not be a department of a medical school; that the school should be related to a university, but that it "must maintain its separate identity; . . . it should be established on its own foundation; . . . have its own buildings; . . . its own governing board; . . . and its own corps of instructors."

The widespread recognition of the need for special training for the health officer over and above the requirements to practice medicine is evidenced by the number of American universities that have come forward with special courses to train men for the new profession. There are now graduate courses in public health in ten American medical schools. The heads of these and other institutions are still working on plans which will improve these facilities or create new facilities for this special instruction. Their problem is one worthy to be considered by itself, and when it is considered attention will no

doubt be given to listing and describing all the branches to be taught. For this reason I shall not here attempt to discuss this side of the problem.

For the present, perhaps the best that can be done to prepare health officers for positions as county or district health officers is to select graduate physicians who have the inherent endowments and the general literary and business training described above, have them study for a reasonable time under the best available conditions those branches that are peculiar to public health work as distinguished from medicine, and then start them to work in the central offices, in the laboratories, and in the field, to serve for a reasonable time under the respective heads of the various divisions under which well organized public health work is conducted. When they have acquired actual experience in all the branches that will have a bearing on the work they are to undertake, they may be placed in positions as health officers, or, better still, they might serve as assistant health officers for a year before actually becoming the responsible heads of the health departments of counties or districts.

This suggestion is outlined as a temporary expedient for the group of health officers now under consideration. It does not by any means solve the problem of providing facilities for the special training of health officers of all ranks. It will aid, however, in securing better qualified health officers; and it will result in increased efficiency in health work. This means that public confidence in health work will grow; health officers will be in increasing demand, and with the increased demand better facilities will come. The science of hygiene, sanitation, preventive medicine, public health or whatever term may be ultimately employed to designate the special work, will assume more definite shape; its scope will become more clearly defined; and the courses offered will apply more and more to the special field. Doubtless the curriculum will grow as that of medicine has grown. What we are certain of at this stage is that special training is necessary for the health officer, and that the number of trained men who enter the work is going to be closely related to the rapidity with which the new science devoted to the care of the well as distinguished from the sick is going to assume definiteness, stability, and a full measure of public support.

DR. E. G. WILLIAMS, Virginia: In my opinion, the whole-time local health officer should be appointed by and should be subject to the State Board of Health. When that is not practicable, he should be appointed by and subject to the local board of health, which should in turn be appointed by the State Board of Health. Least advisable is for the health officer to be elected by the people.

In one of our cities the health officer is elected by the people, and that health officer is probably the least qualified of all the doctors in the city to be health officer. While the people can be trusted to govern the country, I do not think that they should elect health officers who need special technical education.

Now, in this connection, I would say that I am a great believer in having *lay* sanitary inspectors to work with health officers. For every local health officer there should be three or four lay inspectors.

A health officer is expected to inspect privies and abate nuisances and do other things which can be done just as well by a layman. This leaves him little time for other work, which requires special training and knowledge, as educational epidemiological work, etc.

DR. LINSLY R. WILLIAMS, New York: There is one factor in this matter that I think we have to take cognizance of, and that is the population and area. We had a similar fight in New York to that Dr. Hurty had this winter, *i. e.*, opposition from the physician health officers, who are getting anywhere from \$30 to \$700 a year. We have some counties that are very large —about the size of Rhode Island, with a population equal to the population of Rhode Island. When we consider applying this principle to a definite county, I think we have to consider the population and area as an important thing. We have other counties, very small ones, with a population of about 15,000, and it would seem impossible in these counties to get a health officer that could be paid by the county.

When we come to the compensation of health officers, we have a very interesting feature in the New York law. The State Board of Health has the power to enact the qualifications of health officers now or hereafter to be appointed. The question comes up, if you enact the qualifications for a full- or part-time health officer, where are you going to get the man? The supply is not very great, neither is the demand. We have considered requiring that all health officers must be able to read and write, and that they must be free, white, and 21. We thought of having a provision that all must be physicians. That would exclude some. We thought of an age limit between 25 and 83, and

that would exclude some more. We are now considering passing regulations establishing an age limit and requiring all health officers to take a course in practical health matters. When it comes to a question of giving them a course, you must remember that health officers get a limited salary, and unless we give a full-time health officer a decent salary we cannot get men to take the course.

The question brings up problems that are extremely difficult of solution. When we come to further qualifications, as to methods of appointment, etc., I believe civil service should be the rule; but in many States there are constitutional provisions which prevent local officers from being appointed by a central authority. When we make sweeping recommendations, I think we should have in mind what effect they may have.

DR. JOHN L. BURKART, Michigan: The Amberson bill, presented to the Legislature of 1913, provided for a health officer in every county or group of small counties, at a graded salary ranging from \$2,000 to \$5,000.

These men were to be appointed by a board consisting of the judge of probate, county school commissioner, and county clerk of each county, except where small counties were grouped into a district, when the county having the greatest population dominated the appointment. Under the provisions of this bill all applicants were compelled to pass an examination before the State Board of Health, and those meeting the requirements of the law were placed on what was to be called an eligible list, and from this list all selections were to be made.

The estimated cost of this measure was about \$260,000, and each county or district was to pay the salary of the health officer selected. This provision met with objections, and the bill never got out of the committee room.

This year a new bill providing for the division of the State into thirty districts, over which a District Health Commissioner was to preside, at a salary of \$3,500, was presented to the Legislature. The method of appointing these men was similar to the provisions of the Amberson bill, but the salaries were to be paid out of the general fund of the State. The estimated cost was \$150,000 for salaries and expenses.

The opposition to this bill came from the organized band who oppose every attempt to improve the public health service, and literature was prepared and sent to every citizen in advance of the meeting of the Legislature, and fully 750 protests were filed with the Public Health Committee of the House forty-eight hours after the bill was introduced. Opposition also came from many members of the medical profession, who had been admitted to registration under the "years of practice" clause, and from the renegades who were pursuing "sure cure" and other methods. Considerable of this opposition was overcome, but in order to secure some other legislation we agreed to "postponement of action" by the committee. We secured the unanimous indorsement of the Public Health Committee of the House of Representatives upon the merits of the bill, and they went on record to that effect, but urged postponement for economic reasons. The organized opposition had two paid attorneys on the ground all the time until the bill was smothered. In the end we triumphed and secured some good legislation, and finally, ten days before adjournment, got an appropriation of \$100,000 for special work against tuberculosis. This was \$90,000 more than we asked for in our general appropriation bill. Public opinion veered to our side and materially assisted in securing the generous appropriation just named.

DR. W. S. RANKIN, North Carolina: I want to discuss that phase of this question which Dr. Williams brought out, viz., the way of choosing a whole-time health officer and his relation to the State officer. I know that my position is very unorthodox, and that about nine out of ten State health officers believe in the appointment of local men by the State Board of Health. I think that can be done, and should be done, probably, where the State is paying a local health officer, or paying at least part of his salary. But in those States where we have to divide up the financial burden, the State paying part and the county paying part, I think the people who are paying the man should have the right to elect him. That is simply going back to the most fundamental principle of our government, the principle of local self-government. I believe that the people of a county or a town can be educated to elect the right kind of man and to get

rid of him when he does not get results. I do not believe that we have gotten to the time in this country when, as health officers, we have to go before the people of our States and say that the principle of health work is in conflict with the most fundamental principle of our government, *i. e.*, local self-government. I believe that the counties can be educated to elect a county health officer through the board of health, under the county and not the State Government. I have not nearly gotten to the extremity where I am willing to say that in county health work we find an exception to this fundamental principle, and that the people cannot be trusted to elect their own local officers.

DR. J. N. HURTY, Indiana: I agree with Dr. Rankin that health officers should be appointed by the local authorities. My reason for this is that all the counties in Indiana have a population of over 5,500, and with a population as large as that a health officer can save his salary many times over in the work he can do.

We provide in our Indiana bill for two classes of officers. The first class includes those who have had experience, and the second those who have passed a physical and mental examination given by the State Board of Health. We intend that the board shall gradually raise the standard.

The health officers are to be appointed by the county commissioners of the county. Each county has three commissioners, elected by the people. The officers are to serve four years, because that is the longest term allowed by our Constitution. The term should be during good behavior. The power of removal should be given to the State Board of Health, and from the minute of his appointment he should be an officer of the State Board of Health. The salaries were graded from \$1,500 to \$3,600, according to the population served. Cities of 10,000 or over in our bill were given the privilege, under the law, of erecting their own health departments. There was a provision that if they did this, they should appoint their all-time health officers from the list of eligible men furnished by the State Board. Then he was sure to be a man physically able, and a man who seemed fitted for the work.

That was the plan. It would have cost the State about \$80,000 more than the present system, which is so ineffective.

DR. E. F. McCAMPBELL, Ohio: I have been wondering whether Dr. Rankin takes a very different view from that expressed in our model law. The model law provided that the joint boards of county commissioners shall constitute a board to appoint the district health officer, the health officer to be certified to them by the State civil service commission. That was put in to safeguard the home-rule proposition. We may doubt the fitness of the people to govern themselves, but we need not say so. I have been wondering whether Dr. Rankin really objects to the civil service provision. The only provision regarding the State Department of Health is that after the health officer has been appointed by the joint board of county commissioners, he shall be approved by the State Board of Health, as a sort of check. I do not believe that we shall ever be able to put through the proposition that the State Board of Health shall make an out and out appointment; and I do not believe, either, that we shall arrive at a satisfactory solution as long as we let a county board of commissioners or a county board of health elect—virtually elect—a whole-time health officer. The question arises as to how much education the public really has along the lines of public health. If we ever reach the point that Dr. Rankin makes, that the local board of health has such high ideals, it will be almost time for the sprouting of wings.

DR. J. H. BENNETT, Rhode Island: Although Rhode Island is so small a State, yet we have about thirty or forty so-called health officers. One of these is a plumber, another an undertaker, and a third a professional politician, and we have some of every variety—good, bad, and indifferent. It is absolutely impossible to make any changes at all, or to do anything under the present conditions, of appointment or election, as many of these officers have a certain amount of political pull, and we cannot put them out. It seems to me that the State Board of Health should have some authority in the election or appointment of these officers, or, if elected by the local boards, the State Board of Health should have some power of removal in case of incompetency.

DR. J. A. HAYNE, South Carolina: In Richland County, in my State, we have a health officer elected, selected, and remov-

able by the State Board of Health. His expenses are paid by the county only upon certification by the State Board of Health. He serves four years. We prescribe all his duties.

DR. E. R. KELLEY, Massachusetts: We have had, I think, probably the first whole-time county health officer I know of. That gentleman has maintained his office entirely by the sheer weight of his results, and entirely under local supervision. That experience has been so disheartening to my mind that it calls me away from Dr. Rankin's idea. The county health officer, if elected by the county authorities, is a popular hero for the first six months. But after the first year or two they begin to feel that it is too expensive. I do not believe that we can ever get efficient, full-time health officers until there is some sort of civil or professional service so that a man will have some reason to hope that he can remain in the service.

There is one other thing that has not been brought out, and that is that the district health officer of New York, Pennsylvania, Ontario, and Maryland represents something different from what has been touched on. I am not so sure that there is not another possible solution. Possibly if these men were called health ambassadors it would come near to a definition of what they are. These men are on the spot all the time, and it is really surprising to note what results they get through the local officials.

DR. H. T. SUTTON, Ohio: I just want to emphasize the point brought out by Dr. Kelley, and that is, I would much rather trust to an intelligent layman, who is independent and who is, perhaps, on a salary, than to depend upon a part-time health officer. A practicing physician acting as health officer is the worst makeshift I can imagine looking towards the progress of public health. The most important work that we can do is to work towards a condition that will enable a State to employ whole-time health officers.

DR. OSCAR DOWLING, Louisiana: We tried an experiment this year. In one parish in the northern part of the State the police jury employed a man and paid him \$2,400. That man is not entirely satisfactory, because he is trying to build up a practice.

In the southern part of the State we have a man paid by the police jury, the Board of Education, and the State Board of Health. This officer is giving us good service. He examines all the school children; looks after infectious diseases in case there is an outbreak. He gives full time under the direct supervision and direction of the State Board of Health and enforces the regulations without fear and without favor. He knows his job depends upon his doing his duty, and we are getting satisfactory results. We shall show these records to the next Legislature in the hope of getting a law passed.

SYMPOSIUM: METHODS OF QUARANTINE AND DISINFECTION.

DURATION OF QUARANTINE.

Dr. A. J. CHESLEY, Minnesota: Assuming that by quarantine is meant such restriction as is necessary for the preservation of public health, then the duration of such restriction or isolation of the patient should be based upon the time during which there is danger of the spread of disease from the patient. In case of measles, whooping-cough, and scarlet fever we have only experience to guide us. In the case of diphtheria it is different.

I do not care to discuss the duration of quarantine. I had not anticipated discussing this subject at all, but Dr. Rankin asked me to do it, in Dr. Bracken's absence. All of my experience has been in Minnesota. We have only two quarantinable diseases—scarlet fever and diphtheria. In measles we placard the house and keep out of school the children who have not had the disease. Those who have had it may attend school upon certification by the health officer. Children who have not had it are kept out of school for two weeks after the placard is removed. Of course, we believe that measles is infective only during the first few days, and no placard is necessary after two weeks. We consider that a measles patient is almost always perfectly safe after two weeks, and if not so, the health officer can use his discretion.

The regulations for whooping-cough are almost the same.

For scarlet fever the minimum quarantine is three weeks following the first symptoms. It may be a longer period, according to the case. Desquamation is not mentioned in our instructions, but it is covered in such a way that the health officer may use it as a sign of infection, if he wishes to do so. Personally, I think it has nothing to do with the infection.

After the patient is released from quarantine he is not permitted to return to school for at least a week, and then only after examination by the health officer or an authorized agent, usually the attending physician, who must certify that he finds no evidence of infection. In case of ear discharge, the patient may return to school, provided the ear is under treatment and precautions are being taken, prescribed by the local health officer, sufficient, in his opinion, to prevent any danger from the discharge.

In diphtheria, by means of cultures, we have knowledge when the infection is over. We require two negative throat and nose cultures. In country districts, where the expense of having cultures taken is likely to be considerable, at the end of three weeks following the disappearance of all clinical symptoms, the patient may be taken to the health officer to have cultures taken, but no case is permitted to return to school until the absence of the germs is shown by cultures. In every case, when diphtheria bacilli persist thirty days after first symptoms, we make a test for virulence. In this way we avoid long periods of quarantine, which are difficult to enforce. We do not quarantine any one because of the presence of diphtheria bacilli if they are non-virulent.

Occasionally we run upon well persons who have morphological diphtheria bacilli. We invariably make the virulence test, and if the bacilli are not virulent, we remove all restrictions. However, if the bacilli are virulent, such restrictions are imposed as will cover the probability of infection under the conditions and at the same time give the individual reasonable, common-sense consideration. The few well carriers we have found, with one exception, had nonvirulent bacilli. That exception was a person with hypertrophied tonsils, who was engaged in outdoor work. He was permitted to continue his work, and no other cases resulted.

DEGREE OF ISOLATION.

DR. C. V. CHAPIN, Providence, R. I.: I consider it a great honor to have been invited to speak here today, and it is certainly a great pleasure. I have read the reports of these meetings with much interest and profit, and have considered that they are live occasions. I find that they are.

I think that, in considering the degree of isolation in communicable diseases, we should bear in mind several things. The first is that we cannot expect to attain the ideal of perfect isolation. Dr. McCampbell, in his remarks this morning about the health officers' bill, said that almost every one had to deviate somewhat from the standard set by this Conference, and the discussions this afternoon brought it out still more. A few of the health officers who hoped to attain the ideal in that line are far from it, and I fear it is the same with isolation.

It is usually advised that a large, airy room be selected for the patient, in the upper part of the house, with an open fireplace; that all rugs and draperies be removed, and a trained attendant secured, who should not be allowed to go out of the room. The impracticability of this is illustrated by the fact that out of 3,000 cases in Chicago, the Commissioner of Health was able to isolate only about 100 in that way.

Health officers say that cases of contagious disease should be removed to the hospitals, but most communities have no hospital. Even in our large cities the hospitals can care for only a fraction of the cases. In the smaller towns and in the country we have no hospitals. We must meet conditions as they are; we must get the people to do the things that are practicable, the things they can do. Otherwise they will be discouraged and do nothing.

Another thing we must bear in mind is this: it is not the recognized case that does the harm. It seems to be perfectly certain that the reason for the spread of the communicable disease is because they spread from the mild, unrecognized case, or, at times, from the perfectly well carrier; perhaps more often still from the recognized case during the few days before it is recognized and while the patient is up and about. After the disease is recognized, even if the health officer does not do very

much, the disease does not spread much. The danger from recognized cases is not nearly so great as is imagined.

In Providence it has been our experience, during a long period of years, that, given a number of families in the same tenement-house, the disease spreads from one to another in about 6 per cent of the families. It spreads in only about 1 per cent after the disease is recognized. The extension, when it does take place, is before the disease is recognized. We can apply methods of isolation only after the disease is recognized by the physician and reported to the health department. It has been our experience in Providence for the last ten years or more that after the disease is recognized and the house placarded, it spreads to the susceptible members of the household in only about 1 per cent of the cases. That is, of course, very considerable, and among those of a susceptible age the percentage is much greater.

What does isolation do in such cases? The best means of isolation, of course, is removal to a hospital. There can be no infection after the removal of a case to a hospital. With such perfect isolation, the percentage of secondary cases, that is, percentage of susceptibles attacked, is about 4 per cent in Providence, while in home-treated cases it is about 6 per cent. Among children of the most susceptible ages the saving in the incidence of the disease by removal to the hospital is about 50 per cent.

Other people get different results. Dr. Young, in a recent article in the *Journal of the American Medical Association*, reports an occurrence of secondary cases of only 1 per cent in a group of home-treated cases.

We must take things as we find them. The family does not call the doctor at once, and the doctor does not make up his mind promptly or report to the health officer promptly. Nevertheless, the health officer should establish isolation in the family if the case remains at home, and thus he can prevent much of this secondary infection, not only by preventing the children from having the disease, but preventing the older people from becoming carriers.

If we advise isolation, we must advise what is practicable. If we insist upon too many things, the working mother will become discouraged and do nothing. Unless a separate room for the

patient is to be found, isolation is practically useless. But even in the poorest cases it has been my experience that the room will be found. It seems to be not difficult to keep every one out of the room but the mother, and it seems not difficult to persuade the mother to wear a gown or wrap of some kind.

There are only two ways in which infection can come from the patient's room. One is on the person of the attendant, and the other on *things*. If the attendant handles the patient in any way, she must wash her hands. Now, if running water were present (hot water), where the attendant could wash her hands, with soap, the problem of infection would be solved. But in most cases running water is not present, and where it is, it is cold. It seems to be necessary, then, for the attendant to wash her hands in a basin of water, and that is never very satisfactory. In the absence of running water, we have tried to teach people to use a disinfectant, and while I would not insist upon the exact form of the disinfectant, we find that sulpho-naphthol answers very well. It is entirely feasible to get the attendant to prepare a basin of that disinfectant and soak the hands in it after being in the patient's room.

In regard to fomites, it is not everything in the room which is infected. We must insist on essentials. The most dangerous things are the secretions of the nose and mouth. It is not difficult to get the people to receive them upon cloths which can be burned. As for the dishes, etc., it is possible to have them scalded. As to the clothing, since most of the patients are children, the clothes are not large. It is possible to have a wash boiler or a dishpan to put the clothes in, in which they may be boiled. I believe the people can be taught to do these essential things, and by doing them the incidence of the disease in the other members of the family can be very appreciably reduced—reduced almost as much as if the patient were removed to a hospital.

I have had in mind the two diseases, scarlet fever and diphtheria. They are very much alike in many ways. Measles and whooping-cough are different. I doubt if much can be accomplished with them by isolation. After the symptoms have developed, the harm is done; but if, for the sake of other children, people wish to maintain isolation in these diseases, they should

go about it in practically the same way as above. Personally, I do not believe the virus of measles is so easily washed from the hands as is the virus of diphtheria and scarlet fever. It is easier for a third person to carry the virus of measles than the virus of the other two diseases, although it dies more quickly by exposure to light and air.

DISINFECTION AFTER MEASLES, WHOOPING-COUGH, SCARLET FEVER, AND DIPHTHERIA.

DR. C. F. DALTON, Vermont.

In opening the subject of disinfection after certain contagious diseases, I have a full realization that there is very little in the way of agreement to be reached. This subject is still in the process of evolution. We are all of the opinion that disinfection is needless after some of the milder diseases, and some of us are doubtful as to its efficacy in any case. Some would do away with the process entirely, while others consider even the mention of omitting disinfection as rank heresy. Time and further investigation only can settle the question. In the meantime, what shall we recommend in our various jurisdictions?

The subjects to be discussed under this head are:

1. The need of disinfection.
2. Ideal versus routine disinfection.
3. Advisability of continuing the work under prevailing conditions.

1. The Need of Disinfection.—I assume that the word "disinfection" is here used to indicate "terminal disinfection," after the recovery, removal, or death of the patient. There can be no argument as to the necessity of properly caring for the discharges of the patient and the articles used in the sick-room during the course of the disease. Noncompliance with such precautions would be, from our standpoint, little less than criminal. The question of terminal disinfection is altogether another matter.

It is surprising to note the rapid change of ideas on the subject of infective agents in measles and scarlet fever, for example. As late as 1912 Dr. Thomas B. McClintic, of the Public Health Service, wrote in regard to scarlet fever: "Remember that it is during the desquamatory or peeling stage of scarlet fever that the disease is most dangerously communicable, and that this condition exists until the stage of desquamation is entirely completed"; and of measles: "The infection is present in the secretions and in the skin . . . dried particles of skin containing the infection may be conveyed in dust, clothing, etc., and thus spread the disease." (P. H. Bull., No. 42, p. 37.) Two years later Dr. John F. Anderson, of the same Service, stated in regard to work on measles: "Attempts were made, without

success, to demonstrate the presence of infective agents of measles in the 'scales' collected from human cases of the disease from four to seven days after the appearance of the eruption"; and of scarlet fever: "It is then permissible to conclude that the virus of the disease exists in the deposits on the tonsils and tongue, in the blood, the lymphatic nodes, and perhaps in the pericardial fluid." (P. H. Reports, Apr. 3, 1914, pp. 821-822.)

It is this very progress in our knowledge of disease which produces the confusion on the subject of disinfection.

Dr. Anderson further says, in regard to measles: "That cases of the disease are, as a rule, not infective after convalescence is well established."

These statements from such a source, after carefully controlled observations, must be accepted as authoritative. We arrive, then, at the conclusion that since the infective agent of measles is short-lived and is practically eliminated "after convalescence is well established," the procedure necessary in the control of this disease is quarantine and *not* terminal disinfection.

While similar evidence is lacking in regard to whooping-cough, it has been repeatedly demonstrated that *B. pertussis* is not a virile organism outside of the body. Chapin states that there is no clinical evidence of extracorporeal infection, and this fact is pretty generally recognized among sanitarians. Whooping-cough may, therefore, be placed in the same class as measles, and we may again say that if quarantine is properly maintained, terminal disinfection is not necessary.

In considering scarlet fever, we come to more disputed territory. While the specific organism, of course, remains unknown, Rosenau has no hesitation in saying: "The virus of scarlet fever is more resistant than that of measles. It clings persistently to clothing and various objects." (Rosenau, p. 163.) Surgeon J. W. Schereschewsky makes the following statement: "The scarlet fever germ displays great tenacity of life. It seems to cling to whatever object it encounters. In no other disease has the infection been apparently conveyed with such frequency by objects which have come in contact with those ill from scarlet fever, such as clothes, books, toys, and the like." (Sup. No. 21, P. H. Reports, Nov. 27, 1914.)

Many of us have doubtless had experiences which tend to corroborate these statements, although I am aware that some will argue that *bona fide* cases of infection from such sources are extremely rare. This very argument puts scarlet fever into the disputed class; but my contention is that we, as sanitarians, guardians of the public health, must always consider "safety first," and proceed on the basis of eliminating possible danger, rather than be found wanting if the theory should happen to be established proving our guilty negligence. Pending our further knowledge, then, I shall maintain that there is need of disinfection after scarlet fever.

As to diphtheria, there is little dispute. The control of the bacillus carrier is our problem in diphtheria, as probably in other diseases affecting the nasal and pharyngeal membranes, but, aside from this, we all know that Klebs-Loeffler can be found on articles exposed to the secretions of patients. This needs not to be proven by outside authority. It should, therefore, be classed with scarlet fever.

For the present, then, we may disregard measles and whooping-cough and consider further the subject as it relates to scarlet fever and diphtheria.

2. Ideal versus Routine Disinfection.—It must be well understood that laboratory experiments in disinfection and the routine disinfection as practiced by the ordinary health officer are two very different things. The laboratory man aims at sterilization and checks his results by subsequent growths and counts. The health officer usually aims to make a strong odor in the house, and to accomplish this result with the least expenditure of money and time. A system of checks, however, will show that even the perfunctory, more or less hurried fumigation performed by the average health officer actually does kill exposed bacteria. Here, as everywhere, it is the personal equation which must be taken into account. The attitude of the State Department of Health is, however, largely responsible for the energy displayed or neglected by the local health officials. In the matter of disinfection, if we continually cast doubt upon its need and efficacy, even when well done, the local officer naturally goes about his work in a half-hearted manner, with the feeling that it amounts to very little any way. If, on the other hand, we bear down on this subject until we are sure that it is necessary or that it is not, the local man is impressed with a sense of responsibility which will drive him to do the best work possible. We do not need to exaggerate the importance of disinfection above everything else. This would be an error, for the cleaning up after the fumigation is a part never to be omitted. We should make the clear point that bacteria may be killed by gaseous disinfection and that the more perfect the technique, the nearer the approach to the ideal. Thus put on their mettle, most men can be stimulated to higher aims, and corresponding results may be expected.

3. Advisability of Continuing Disinfection Under Prevailing Conditions.—Here I desire to quote again from Professor Rosenau, who must be classed as more a conservative than an enthusiast on disinfection: "Terminal disinfection during recent years has been disparaged as a public health measure because it has little effect upon the control of the communicable diseases, and the cost of such disinfection appears to be disproportionately large to the benefits. The evident limitations of terminal disinfection have cast doubt in the minds of some health officers upon the value of disinfection in general. This is an unfortunate attitude. No one can question the great value of

disinfection, properly applied. It is, of course, much more important to destroy the infection in the discharges throughout the course of a case of typhoid fever than to trust to one final disinfection of the sick-room and its contents. The same holds with about equal force for most of the communicable diseases. We now know that fomites play a comparatively minor rôle in the transmission of disease. The disinfection of rooms and objects does not now, therefore, hold the importance in the minds of sanitarians that it once did. However, if terminal disinfection prevents the occurrence of only a small number of cases, it would seem to be worth while. Moreover, what health officer would willingly allow his child to occupy the bed or handle the objects in a room soon after a case of typhoid, scarlet fever, tuberculosis, or diphtheria without first applying some effective method of purification? The greater the care and cleanliness exercised during the progress of the disease, the less need of terminal disinfection. So long as we possess such a reasonably efficient and satisfactory substance as formaldehyde, terminal disinfection should be practiced after all diseases in which the environment may become infected, even though the danger be slight."

This seems to me to be the crux of the situation. The treatment we, ourselves, would desire should be the guide, as far as possible, for our public acts. Even a few lives saved and a little suffering eliminated is reason enough for the continuance of disinfection, even though there be doubt as to its efficacy. There is doubt, says the conservative. Then, as public health officials, we should always be found on the safe side and act in spite of the doubt until it is conclusively proven that doubt no longer exists. To be clean-cut in our convictions and consistent in our actions must make for the furtherance of public health, for which we are all striving.

Such doubt has apparently been removed in regard to measles and whooping-cough, and we may say, with positive conviction, that providing quarantine is maintained for a sufficient length of time, there is no need of disinfection. Conversely, if quarantine is released too early, disinfection is worse than useless, for not only is the patient still infective, but the family is thereby given a clean bill of health, the bars are let down, and the patient goes forth to slay his possible thousands.

We have no such assurance in scarlet fever and diphtheria. If any health official has formed his opinion that disinfection can be disregarded in these diseases, his evidence is largely circumstantial, and there still exists the reasonable doubt, which the courts hold must be recognized. Until this reasonable doubt is removed, our course in advising the best disinfection possible after these diseases is plainly marked.

QUARANTINE OR NO QUARANTINE FOR SMALLPOX.

DR. W. S. RANKIN, North Carolina: I had hoped that Dr. Porter would be here and lead the discussion on this matter, but since he is not here, I will give you our views on it. Dr. Porter and I both hold the heresy that smallpox should not be quarantined. In North Carolina the law allows that the counties may quarantine or not quarantine smallpox, as they wish. If they get after the State Board of Health for not quarantining it, we tell them to go ahead and quarantine, if they want to.

That is our position in North Carolina. A county does not have to adopt that idea unless it wants to. We had to have a sort of local-option provision to save ourselves. The only thing our State law requires is that a public notice shall be given to the people in a community where there is an outbreak of smallpox, in accordance with the instructions of the State Board of Health, and, second, that all people admitted to public institutions, jails, county homes, and convict camps shall be vaccinated at the time of admission. The law permits other things, but the two things it prescribes are those named.

The public notice is given by two red placards, one for the counties which quarantine the disease and one for use in the counties where it is not quarantined.

We believe that we have not only diminished the number of cases of smallpox in North Carolina, but that we have also saved a lot of money. We believe, too, that our population is more thoroughly vaccinated today than it was before we adopted this law; and that is what we want, as health officers.

DISCUSSIONS.

DR. M. M. SEYMOUR, Saskatchewan: We have recently had a very severe outbreak of diphtheria in my Province, and we have had a great deal of trouble in connection with it, owing to the very mild character of the disease. We gave antitoxin, but those who came in contact with the patient would have positive throat cultures, and they would remain positive for several weeks. That has been a particularly difficult question to handle, for the reason that the people were not sick and still the bacteriologist returned reports continually of a positive character. We used

the recommended treatments in the way of douching with normal salt solution and other mild antiseptics, but in some cases we found that the continuance of the local treatment seemed to aggravate the irritation, and in some cases it seemed best to omit the local treatment entirely.

I should like to hear something about the question of carriers, and as to the best method of dealing with them. You all know in what a large number of persons the Klebs-Loeffler bacilli show. In some cases we have had a great deal of fault found with the way in which the cases were handled. But our bacteriologist informs us that these apparent atypical cases develop severe forms of the disease, so we endeavored to be on the safe side by continuing isolation of all carriers until the throats cleared up.

The difference between the handling of this question in cities and in the counties is very great. In cities, where we have trained nurses, and proper attention given to the patients, of course the infection can be much better controlled than in the outlying districts. Our period of quarantine for diphtheria is four weeks, but upon the advice of the attending physician and the report of a negative swab from the bacteriologist, the patient may be released sooner. The reason for that is that the laws have to be made not only for the cities, but for the large Province of Saskatchewan. In order to protect the public we have had to make a law to keep the patient isolated for a reasonable length of time; so that is why we fixed it at four weeks.

Very satisfactory results have been had in the use of the Schick test. The information obtained by the use of this test, in determining among those exposed to diphtheria, the persons possessing a sufficiency of antitoxin to prevent infection, makes it necessary to give immunizing doses of diphtheria antitoxin only to those really requiring it.

So far as scarlet fever is concerned, we insist upon isolation and quarantine for six weeks. In large and sparsely settled districts, where medical men are few, we must be on the safe side, and of course you all know that it is the mild case of scarlet fever that spreads the disease. So we insist upon all cases being quarantined for six weeks.

Dr. B. FRANKLIN ROYER, Chief Medical Inspector of Pennsylvania: I was somewhat surprised to find 30 per cent of second-

ary cases in those remaining at home, as against the cases going to the hospital, and the great variation between Dr. Chapin's results and those in Chicago. I think the reason must be that he included measles cases along with scarlet fever and diphtheria. It is only in this way that I can account for the difference.

One type of dangerous case has not been mentioned, that is, the concealed case. We need not fear so much the reported cases. We know what to do with them, hence do not expect many secondary cases. But often in diphtheria or scarlet fever the family alone, or with connivance of the doctor, may conceal the diagnosis of the case. I feel that many of our secondary cases come from concealed cases.

I thoroughly agree with Dr. Chapin as to the efficacy of washing the hands. For several years I was executive officer and physician in one of the largest diphtheria and scarlet fever hospitals in this country. After seeing and examining one of these cases, I would remove the overall gown and cap, wash my face and hands thoroughly with soap and water, using a nail brush for the hands, and rely entirely upon that, going directly to other cases with other diseases. In no instance could evidence be obtained that infection had been carried.

We must not rely merely upon placarding the house and establishing domiciliary quarantine, but should give the family printed instructions as to washing the hands, changing the clothes, etc. If this is done, I think it is quite safe for the wage-earner to continue his work.

As to the use of antiseptics in the throat, my experience has been that they are absolutely valueless, and that the throat clears up quicker if none are used. If antiseptics are strong enough to kill germs, they are strong enough to injure or severely irritate tissue. I have come to rely largely upon normal salt solution for cleansing of the throat and nose.

In regard to the difference between quarantine in urban and rural populations, the difference should be rather extension of the area quarantined. There is no reason why the rural dweller when physically fit should not have the freedom of his grounds. I believe we may urge and allow a greater freedom in using grounds surrounding dwellings in rural districts. As to the

attendance at school, etc., the laws and restrictions should be the same. In Pennsylvania the urban communities are required to meet a required minimum standard, and the same minimum standard is used for rural districts. The State Department of Health has authority to take charge of public health work in any municipality, and at the expense of the municipality, when their standards do not come up to the minimum standards.

DR. ROY K. FLANNAGAN, Virginia (assistant State Health Commissioner): It may be of interest to you to know how the State Board of Health of Virginia attacked a rural epidemic of diphtheria last year. A rather urgent call came from a man in the western part of our State, who said there was diphtheria in his town, that the women were up in arms, the local doctors differed as to diagnosis, a child had died, and somebody must come. I was detailed to go there and see what I could do. I carried a large number of sterile swabs. The schools had been dismissed, all except the high school. I swabbed the throats of all the children there, and sent the swabs off to the State Bacteriological Laboratory. Then I went through the community and took cultures from the throats of all the children who had been in school and others of their families. These also were sent to the laboratory, and as the reports came back, positive cases were quarantined. After the first afternoon's swabbing a dispensary was established for the administration of immunizing doses of antitoxin. The whole community was then called together in the courthouse and told what they must do if the epidemic was to be relieved quickly. They were informed that a great many of them, not apparently ill, would have to be quarantined for the sake of the others. A great many of them were afterwards quarantined and stood it very nicely. We found something like fifty positive cases in the community, most of them showing no active symptoms of diphtheria. Of course, a great many of them were in the same families. Within a week a neighboring doctor took cultures from all isolated cases and released all those reported negative. In the course of ten days from notification the school was opened and in ten days more quarantine was lifted from the last case. Only one new case resulted after we began operations.

DR. E. R. KELLEY, Massachusetts: The question that goes down to the real bottom of the diphtheria problem is the virulence test. In the examination of school children we will often find two or three or more who will show morphological signs of diphtheria. It is unfair, I think, to quarantine them without determining whether they are virulent. I should like to hear from Dr. Chesley on that point.

DR. A. J. CHESLEY: In Minnesota the culture method for control of diphtheria was first used in the State public school at Owatonna in 1896, and has been followed in institutions since then and in public school epidemics for seventeen years. As a routine measure throughout the State in all cases, it was instituted by order of the State Board of Health seventeen years ago, but only during the last three years have the cases been followed up to see if the culture control was uniformly applied.

Our epidemiologists take the first cultures in institution and school investigations, and sometimes in other outbreaks. When diphtheria bacilli are found in cultures from well persons, virulence tests are made at once. In 1914 seventy-two virulence tests on "well carriers" showed only three strains of bacilli to be virulent. One was obtained from an eye culture, the other two from nose cultures.

Isolation is not required, even in institutions, if the bacilli are not virulent. Teachers with nonvirulent but morphological diphtheria bacilli are allowed to teach even in kindergarten classes, and these nonvirulent carriers have never spread diphtheria. Perfectly well persons with virulent diphtheria bacilli have spread the disease, but usually some irritation of nose and throat occurred which gave rise to abnormal nose and throat discharges.

We take pains to explain fully to the infected person how it is that one may be infected with virulent bacilli dangerous to others but not to himself through the possession of acquired or natural immunity.

DR. L. L. LUMSDEN, U. S. P. H. S.: I should like to discuss the subject of "quarantine" or "no quarantine" for smallpox.

I think we are really making progress in the somewhat hackneyed subject of education of the public along public health

lines. I think we all realize, as practical health men, that as we make substantial progress along this line, the people are becoming divided into two factions—those who are for the remedies suggested and those who are against the remedies suggested. However satisfied we on one side may be as to the potency, the common sense, the positiveness of the remedies, there is always another party which takes the opposite view. Smallpox is epidemiologically one of the best known of the communicable diseases with which we have to deal, yet we have "vaccinationists" and "antivaccinationists," "isolationists" and "antiisolationists."

We heard this afternoon from the Health Officer of Michigan about how a certain force operating in the Michigan Legislature prevented the passage of what is considered by this Conference an important measure. That same force is said to be endeavoring to prevent the use of so-called vaccines and serums which have been proved to be effective in the prevention of certain communicable diseases. While we, as practical health men, believe that vaccination is the great measure for the prevention of smallpox, I wish to bring to the attention of this Conference the fact that there are in the United States many children who are under the control, at the present time, of persons who do not believe in vaccination, persons who are as sincere and vigorous in their disbelief as we are in our belief. I think that these children raise their hands to us in appeal for protection against this disease which kills, this disease which maims; and in view of that circumstance, I wish to call to the earnest attention of this Conference, quarantine, if you choose to call it that, or isolation, for the protection of those who are not vaccinated because their parents or other persons who control them do not believe in vaccination.

Dr. G. T. SWARTS, Rhode Island: I think in the consideration of all these subjects we must come back to the proposition given us this afternoon by Dr. Ferrell, that the health officer must be a man with common sense. We can have figures and can show, probably, where quarantine has been successful and where it has failed.

In regard to the quarantine of the four diseases mentioned, we know very little except so far as diphtheria is concerned.

As to the extent of isolation, do not make a rule that you cannot live up to, but use common sense in regard to this.

While we do not believe in fumigation by sulphur, and while we may think that formaldehyde has some value, we know that it fails in a great many cases. I am afraid a false sense of security is often given by making a stench. But if you tell the people that house-cleaning and soap and water, air and sunlight are a protection, something will be accomplished.

As to the gentleman who advocates no quarantine for smallpox, if I did not know where he came from I might think that he comes from the land of "Kultur" with a large K. In other words, he says, "Here is a war zone. Enter it at your own peril." But though I may be willing to enter that zone and contract the disease, what right has he to permit me to expose others, who are not vaccinated, to danger?

DR. E. R. KELLEY, Massachusetts: It is now just about twenty years ago that bacteriological diagnosis of diphtheria became an established fact. It was proven at that time that diphtheria could be safely handled from the laboratory standpoint. The question as to whether all cases of morphological diphtheria really mean clinical diphtheria is the great question now confronting us. Examination of school children seems to show that 1 to 2 per cent will show the organism, *i. e.*, a true Klebs-Loeffler bacillus. When we apply the acid test as to the virulence of that organism, we get a very different story. We find that one-half of 1 per cent, only, show virulence. I believe that if we are really going to keep up to date, and do true justice to the general public, it will be more and more essential, as public health officials, when we have an outbreak of diphtheria, to determine which of the two classes of carriers is doing the harm.

In Massachusetts we had several cases along that line. In one town we had a persistent outbreak of diphtheria. Upon examining the children we found that five had Klebs-Loeffler bacilli. However, only one had virulent bacilli. To this child we traced several rather indefinite contact cases. The virulence test means a tedious, laborious procedure, but I believe that to be fair to all the public we have to know not only whether the diphtheria bacillus is present, but also whether it is virulent.

In regard to smallpox, if I remember the facts accurately, Dr. Winslow, of the New York Department, told us a few weeks ago that the fact was conclusively proved that in 1914 there were two positive deaths from smallpox in the great State of New York, and there were eleven cases of tetanus that were unmistakably the result of careless or inefficient vaccination. That resulted in the repeal of the school vaccination law. As long as we have the two strains of smallpox in the United States, I think we have to take a chance, and none of us can make any dogmatic statements in regard to smallpox. We do not know everything about vaccination yet. Here is the problem: We have the very mild form of smallpox, the cases that show only two or three or may be fifty or sixty pustules, and that is why people say they would rather have smallpox than vaccination. Then there is the virulent strain, and it is our duty to urge vaccination because of the ever present danger of the virulent smallpox coming into our midst. I have great dread of the time which may come, but which I hope never will, when the true, old-fashioned, malignant type of smallpox travels through the United States.

DR. B. FRANKLIN ROYER, Chief Medical Inspector of Pennsylvania: I am interested in the test for virulence in diphtheria carriers. In 1907 and 1908 in the Municipal Hospital of Philadelphia we conducted careful tests in some forty cases of diphtheria where the cultures remained positive an unduly long time. Four weeks after the onset of the illness where the culture was positive morphologically and bacteriologically, and yet nonvirulent by pig test, we discharged these cases into homes—forty in all—where we knew other children resided who had not had the disease, and yet not a single secondary case resulted.

We worked out a rapid method of determining virulence by not isolating the diphtheria-like organism in pure culture. This method was worked out at the suggestion of Dr. A. C. Abbott for the purpose of saving time. A platinum loop full of a growth, showing in the characteristic way a large colony of diphtheria organisms, was taken from the Loeffler media slant and inoculated directly into bouillon media, and from this growth, without further inoculation, pigs were inoculated. If they survived, we

reported the culture as nonvirulent. If the pigs sickened and died, we continued our method of isolating to pure culture and then injected the pig with the pure diphtheria-like organisms. In many instances the rough-and-ready method is just as useful, so far as negative virulence is concerned, as the more refined isolation method, and it will often result in saving a week or ten days time.

Another thing to which I wish to call your attention is Noguchi's recent observations on the production of vaccine virus. He takes the ordinary glycerinated virus and, after shaking with ether for a period of twelve hours, injects directly into the testicles of rabbits, securing in this way a vaccine virus that is practically free. He has also secured the same results with bullocks and believes that this method, which will give available virus in a week or ten days, may prove valuable commercially, especially in hot countries.

DR. RANKIN: I think I have the right to close the discussion on the quarantine of smallpox, as I opened it. The point is that Dr. Lumsden and Dr. Swarts are looking after the child that loses its life on account of no quarantine. Now, I am looking after two or three other children which lose their lives because their parents depend upon quarantine, which is no protection. I say that if I decrease my liability to smallpox, I am looking after the most children. You have to lose in public health work occasionally. When we can save two lives by losing one, we had better lose one and save two. That is my policy, exactly. This is the point we must remember as health officers: We are after only one thing in the suppression of smallpox, and that is the vaccination of the largest percentage of the population we can get. If quarantine will help you to get a large percentage vaccinated, why quarantine. But if it does away with vaccination, don't quarantine.

I want you to understand clearly that the North Carolina State Board of Health advocates compulsory vaccination. Then we advocate, next, compulsory vaccination of school children; after that, warning to all in danger.

DR. E. R. KELLEY: I am not posing as an antivaccinationist. I do wish, however, to call attention to the fact that in one year

in New York State there were two deaths from smallpox and eleven deaths from tetanus caused by vaccination. Simultaneously with this, there were no deaths from tetanus in New York City, with the trained vaccinationists there. Of course, the logical idea is to train the vaccinationists.

NEW BUSINESS.

The following resolution was offered by Dr. Hurty, and referred to the Committee on Resolutions:

Whereas, Rule 3 of the rules governing the transportation of the dead, adopted at St. Paul in 1913 by this Conference, which reads as follows:

"RULE 3. The transportation of the bodies dead of any diseases other than those mentioned in Rule 2 shall be permitted under the following conditions:

"(a) When the destination can be reached within twenty-four hours after death, the coffin or casket shall be encased in a strong outer box made of good sound lumber not less than $\frac{7}{8}$ of an inch thick. All joints must be tongued and grooved, the top and bottom put on with cleats or cross-pieces, all put securely together and tightly closed with white lead, asphalt varnish, or paraffin paint, and a rubber gasket placed on the upper edge between the lid and the box.

"(b) When the destination cannot be reached within twenty-four hours after death, the body shall be thoroughly embalmed and the coffin or casket placed in an outside case constructed as provided in paragraph (a).

"RULE 6. Every outside case shall bear at least four handles, and when over 5 feet 6 inches in length shall bear six handles."

is being generally disregarded and the old style box being approved by the States, I move to amend paragraph (a) of Rule 3 by striking out the words "*and tightly closed with white lead, asphalt varnish, or paraffin paint and a rubber gasket placed on the upper edge between the lid and the box.*"

DR. CRUMBINE: Mr. J. H. McCully, representing the National Funeral Directors' Association, is with us today, and I am sure that the Conference will be pleased to hear from him.

MR. McCULLY: I thank you for this courtesy, and I have only this to say: The State of Wisconsin has advocated this rule, so far as interstate shipments are concerned. Indiana does not observe this part of Rule 3; neither does Kentucky; and I am told that other States desire to do away with this particular

part of section (a). The rule, as it stands, is a hardship to the undertaking profession, as we are compelled to carry these special boxes in all sizes. If the box is not made of perfectly dry lumber, no matter how much lead is put in, the joints will open. If the body reaches its destination within twenty-four hours after death, no fluids can escape. If it cannot reach its destination within that time, it will be embalmed. If the Conference will adopt this resolution, a very great favor will be conferred upon us.

REPORT OF AUDITING COMMITTEE.

The report of the Auditing Committee was read by Dr. McCampbell:

The Auditing Committee has carefully examined the accounts of the Secretary-Treasurer, Dr. W. S. Rankin, and finds the same correct.

A. CLARK HUNT,

Chairman:

CHARLES F. DALTON,

E. F. McCAMPBELL,

Committee.

REPORT OF COMMITTEE ON RESOLUTIONS.

Whereas, Rule 3 of the rules governing the transportation of the dead, adopted at St. Paul in 1913 by this Conference, which reads as follows:

“RULE 3. The transportation of the bodies dead of any diseases other than those mentioned in Rule 2 shall be permitted under the following conditions:

“(a) When the destination can be reached within twenty-four hours after death, the coffin or casket shall be encased in a strong outer box made of good sound lumber not less than $\frac{1}{2}$ of an inch thick. All joints must be tongued and grooved, the top and bottom put on with cleats or cross-pieces, all put securely together and tightly closed with white lead, asphalt varnish, or paraffin paint, and a rubber gasket placed on the upper edge between the lid and the box.

“(b) When the destination cannot be reached within twenty-four hours after death, the body shall be thoroughly embalmed and the coffin or casket placed in an outside case constructed as provided in paragraph (a).

“RULE 6. Every outside case shall bear at least four handles, and when over 5 feet 6 inches in length shall bear six handles.”

is being generally disregarded and the old style box being approved by the States:

Resolved. That paragraph (a) of Rule 3 be amended by striking out the words "*and tightly closed with white lead, asphalt varnish, or paraffin paint, and a rubber gasket placed on the upper edge between the lid and the box.*"

Whereas the widespread use of harmful patent and proprietary so-called medicines is an evil; whereas these nostrums are pernicious and baneful in effect; whereas the enormous profits accruing from the sale of these nostrums are derived largely from the income of the poor and unfortunate; whereas the Conference of Secretaries of State and Provincial Boards of Health of North America now assembled is in full sympathy with the efforts of the United States Government and Post-office Department in their attempts to control the deception practiced in the sale, manufacture, and advertisement of the so-called remedies; and in hearty accord with the activities of the Board of Health of New York City and the State Board of Health of Louisiana in their attacks on these preparations, and with their regulations which require that all manufacturers print the formula of the contents on all labels or file with said boards the formulas used in the manufacture of such remedies: Therefore, be it

Resolved. That we unanimously approve the campaign now in progress by the *American Medical Association Journal*, *Southern Medical Journal*, *Harper's Weekly*, *Ladies' Home Journal*, and other publications, the New York City Board of Health, the Louisiana State Board of Health, and the work of Honorable Samuel Hopkins Adams, in the hope that this evil may be controlled and ultimately eliminated; and be it

Resolved. That a copy of these resolutions be transmitted to the Solicitor of the Post-office Department.

SAFE DISPOSAL OF HUMAN EXCRETA AT UNSEWERED HOMES.

Whereas much preventable disease in the United States results from insanitary disposal of human excreta in our rural districts; Therefore, be it

Resolved. (1) That the promotion of improved methods of disposal of human excreta at unsewered homes is one of the most important duties of municipal, county, State, Territorial, Provincial, and National health officials.

(2) That the only disposal methods to be recommended are those which prevent the conveyance—by water, foods, fingers, flies, or other agencies—of human excreta to human mouths.

(3) That human excreta not previously treated so as to be rendered free from all living pathogenic agents likely to be contained in such matter should not be deposited in the ground at any place near, and certainly not less than 200 feet from, any source of water supply used by persons for drinking or culinary purposes or for washing foods or food containers.

(4) That the places used for the disposal of human excreta in the ground should, wherever practicable, be downhill, and never uphill, from dwellings and from sources of water supply.

(5) That at every place of human abode, and also at schools and churches, either sanitary waterclosets or sanitary privies should be provided, and these should be used in a cleanly manner.

(6) That in advocating privies for use in the disposal of human excreta, not only proper construction, but also proper upkeep and proper use of the same, and proper disposal of contents, should be urged.

(7) That in general the only types of privy to be recommended as sanitary are those provided with water-tight receptacles to receive the excreta, and so constructed that flies cannot have access to the excreta.

(8) That the construction and use of privies such as fly-proof surface privies, unscreened receptacle privies, and the so-called "pit privies," which may be improvements over existing privies in certain localities, but which can be made to serve the purpose of sanitary privies only under certain conditions of location, season, and soil formation, should be suggested only as compromises and with a full presentation of their attendant dangers.

(9) That the so-called "pit privies" are especially unsuited for use in sections having limestone or marshy soil formation.

(10) That in recommending an installation or a modification of privies, the principles of sanitary disposal of human excreta should be emphasized.

The report of the Committee on Resolutions was adopted as read.

REPORT OF COMMITTEE ON NOMINATIONS.

For President, Dr. Ennion G. Williams, Virginia.

For Vice President, Dr. E. F. McCampbell, Ohio.

Executive Committee: Dr. A. G. Young, Maine; Dr. John W. S. McCullough, Ontario, Canada; Dr. T. D. Tuttle, Washington.

The report of the committee was received and the officers named were elected.

There being no further business, the Conference then adjourned.

OFFICERS OF THE CONFERENCE, 1916.

President—DR. ENNION G. WILLIAMS, Virginia.

Vice President—DR. E. F. McCAMPBELL, Ohio.

Secretary-Treasurer—DR. W. S. RANKIN, North Carolina.

EXECUTIVE COMMITTEE.

DR. A. G. YOUNG, Maine.

DR. JOHN W. S. McCULLOUGH, Ontario, Canada.

DR. T. D. TUTTLE, Washington.

COMMITTEES.

Conservation of Vision—Dr. Gardner T. Swarts, chairman; Dr. M. M. Seymour and Dr. J. H. Townsend.

Pellagra—Dr. James A. Hayne, chairman; Dr. H. L. Harris and Dr. W. H. Sanders.

Sanitation of Common Carriers—Dr. E. R. Kelley, chairman; Dr. C. J. McGurren and Dr. John W. S. McCullough.

Model State, District, and County Health Laws—Dr. E. F. McCampbell, chairman; Dr. S. J. Crumbine and Dr. G. H. Sumner.

Course of Study in Sanitation for Women's Clubs—Dr. S. J. Crumbine, chairman; Dr. Frederick R. Green and Mrs. W. A. Johnson.

Recent Advances in Sanitary Laws, Organization, and Practice—Dr. S. J. Crumbine, chairman; Dr. A. J. Chesley and Dr. John S. Fulton.

Postal Aid to State Health Work—Dr. John S. Fulton, chairman, and Dr. A. E. Frantz.

SECRETARIES OR EXECUTIVE OFFICERS, STATE
AND PROVINCIAL BOARDS OF HEALTH OF
CANADA AND UNITED STATES.

CANADA.

Dr. F. Montizambert, Director-General of Public Health, Ottawa, Ontario.

PROVINCES.

Alberta—Dr. T. J. Norman, Provincial Medical Officer of Health, *pro tem.*, Edmonton.

British Columbia—Dr. C. J. Fagan, Secretary, Victoria.

Manitoba—Dr. E. M. Wood, Secretary, Winnipeg.

New Brunswick—Dr. E. Bayard Fisher, Secretary, Fredericton.

Nova Scotia—Dr. W. H. Hattie, Provincial Health Officer, Halifax.

Ontario—Dr. John W. S. McCullough, Chief Officer of Health, Toronto.

Quebec—Dr. E. Pelletier, Secretary, Montreal.

Saskatchewan—Dr. M. M. Seymour, Commissioner of Public Health, Regina.

UNITED STATES.

Dr. Rupert Blue, Surgeon-General, U. S. Public Health Service, Washington, D. C.

STATES.

Alabama—Dr. W. H. Sanders, State Health Officer, Montgomery.

Alaska—(Has no district board of health.)

Arizona—Dr. Robert N. Looney, Secretary, Phoenix.

Arkansas—Dr. J. P. Sheppard, State Health Officer, Little Rock.

California—Dr. Donald H. Currie, Secretary, Sacramento.

Canal Zone—Col. W. C. Gorgas, Chief Sanitary Officer, Ancon.

Colorado—Dr. Paull S. Hunter, Secretary, Denver.

Connecticut—Dr. J. H. Townsend, Secretary, Hartford.

Delaware—Dr. A. E. Frantz, Secretary, Wilmington.

District of Columbia—Dr. William C. Woodward, Health Officer, Washington.

Florida—Dr. Joseph Y. Porter, State Health Officer, Jacksonville.

Georgia—Dr. H. F. Harris, Secretary, Atlanta.

Hawaii—Dr. K. B. Porter, Secretary, Honolulu.

Idaho—Dr. Ralph Falk, Secretary, Boise.

Illinois—Dr. E. St. Clair Drake, Secretary, Springfield.

Indiana—Dr. J. N. Hurty, Secretary, Indianapolis.

Iowa—Dr. Guilford H. Sumner, Secretary, Des Moines.

Kansas—Dr. S. J. Crumbine, Secretary, Topeka.

Kentucky—Dr. A. T. McCormack, Secretary, Bowling Green.

Louisiana—Dr. William M. Perkins, Secretary, New Orleans.

Maine—Dr. A. G. Young, Secretary, Augusta.

Maryland—Dr. John S. Fulton, Secretary, Baltimore.

Massachusetts—Dr. Allan J. McLaughlin, Commissioner, Boston.

Michigan—Dr. John L. Burkart, Secretary, Lansing.

Minnesota—Dr. H. M. Bracken, Secretary, St. Paul.

Mississippi—Dr. E. H. Galloway, Secretary, Jackson.

Missouri—Dr. J. A. B. Adecock, Secretary, Jefferson City.

Montana—Dr. W. F. Cogswell, Secretary, Helena.

Nebraska—Dr. J. D. Case, Health Inspector, Lincoln.

Nevada—Dr. S. L. Lee, Secretary, Carson City.

New Hampshire—Dr. Irving A. Watson, Secretary, Concord.

New Jersey—Dr. J. C. Price, Secretary, Asbury Park.

New Mexico—Dr. W. E. Kaser, Secretary, East Las Vegas.

New York—Dr. Hermann M. Biggs, Commissioner, Albany.

North Carolina—Dr. W. S. Rankin, Secretary, Raleigh.

North Dakota—Dr. C. J. McGurren, Secretary, Devils Lake.

Ohio—Dr. E. F. McCampbell, Secretary, Columbus.

Oklahoma—Dr. J. C. Mahr, Commissioner, Oklahoma City.

Oregon—Dr. Calvin S. White, Secretary, Portland.

Pennsylvania—Dr. Samuel G. Dixon, Commissioner, Harrisburg.

Philippine Islands—Dr. V. G. Heiser, Commissioner, Manila.

Porto Rico—Dr. W. F. Lippitt, Director of Sanitation, San Juan.

Rhode Island—Dr. Gardner T. Swarts, Secretary, Providence.
South Carolina—Dr. James A. Hayne, Secretary, Columbia.
South Dakota—Dr. P. B. Jenkins, Secretary, Waubay.
Tennessee—Dr. R. Q. Lillard, Secretary, Lebanon.
Texas—Dr. W. B. Collins, State Health Officer, Austin.
Utah—Dr. T. B. Beatty, Secretary, Salt Lake City.
Vermont—Dr. Charles F. Dalton, Secretary, Burlington.
Virginia—Dr. E. G. Williams, Commissioner, Richmond.
Washington—Dr. T. D. Tuttle, Commissioner, Seattle.
West Virginia—Dr. S. L. Jepson, Secretary, Wheeling.
Wisconsin—Dr. C. A. Harper, Secretary, Madison.
Wyoming—Dr. W. A. Wyman, Secretary, Cheyenne.

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